

abdo|Examinations

Dispensing Practical

Revision Guidance for students

Preliminary Qualifying Examination



PQE Revision guide in conjunction with the 2023 Level 6 Diploma in Ophthalmic Dispensing Syllabus

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Preliminary Qualifying Examination

Preface

This book is designed to familiarise you with your Preliminary Qualifying Examinations (PQE). The objectives for each section will be covered in detail along with hints and tips on the procedures you may wish to use. This guide is intended to complement, but not replace the valuable practical teaching you will receive from your training institute.

Location and useful information

Exam Application Process

The exam application forms can be downloaded from the examinations website. Please be aware that the deadline for entry is 1st March for the summer session and 1st October for the winter session.

Location of Theory Exams

All ABDO theory examinations are conducted via an on-line platform. For those with evidenced exemption from the on-line examination, the hard-copy theory examinations will be undertaken at the ABDO National Resource Centre (NRC), in Birmingham.

Location of Practical Exams

The practical examinations are held in the ABDO NRC, in Birmingham. We require all candidates to arrive at least 30 mins before their start time, for a full exam sitting, no later than 8:00am. We recommend that you book accommodation as close to the venue as possible.

PLEASE NOTE: there is very limited parking at the venue, please make sure if travelling by car you have alternative parking arrangements planned and the time it will take you to walk to the NRC if needed.

On entering the building proceed to the back of the entrance hall to the lift area and continue to the fourth floor where an ABDO representative will be there to welcome you, check your photographic ID, issue you with your examination timetable and direct you to your holding area for the rest of the day.

You will find toilets, a water dispenser and a drinks machine on this floor. For lunch options a meal deal can be purchased from the NRC at the point of registration, there are also small shops within walking distance if needed.

Please respect that your holding area is close to the examination rooms and we therefore ask for noise to be kept to a minimum, rubbish to be placed in the bins provided, the area kept clear and luggage stored away from exits.

By presenting yourself at the venue you are deeming yourself fit to sit the examination. However, we do appreciate that unforeseen circumstances can happen on the day and therefore there will be an ABDO representative contact number on your exam letter or you may leave a message with the ABDO NRC - telephone 01217 527 500.

Reasonable Adjustments

If you require reasonable adjustments to be made to your exam experience, this must be arranged 'prior' to attending your examination with supporting evidence. Please contact the exams department and complete the form on the website with as much notice as possible, so that specific arrangements can be made.



Aqueous II building at Aston Cross Business Village



Reception area at the NRC Birmingham



Preparation

What to take with you on the day:

- Your ABDO examinations letter
- Photographic ID
- Pen, calculator and rulers

In terms of equipment, you will see from the photographs within this guide that fixed and rotating focimeters are provided for each student sitting the examinations in the UK. In terms of rulers and tools; we will endeavor to supply a wide range, but we recommend that you bring your own.

What to wear on the day:

Smart business attire is expected, you are attending professional assessments and will be seeing real patients.

To achieve the consistency and accuracy of skills required of a dispensing optician, we recommend you practice the acquired skill with a systematic approach on a regular basis in the months leading up to your professional examinations.

ABDO National Resource Centre

Aqueous II
Aston Cross Business Village
Chester Street
Birmingham
B6 5RQ

Telephone: 01217 527 500

Preliminary Qualifying Examination

Sections

The examination is divided into the following sections:

A	Single vision lenses	1 hour total
	Candidates will be required to complete the following tasks and record:	
A1	Use a lens measure to find the base curve, cross curve and sphere curve of two uncut lenses.	15 mins
A2	Use a focimeter to find the powers of a pair of glazed toric lenses, locate the vertical position of the optical centres relative to HCL and the optical centre distance.	15 mins
A3	Hand neutralise a pair of spectacles glazed with toric lenses, locate the vertical position of the optical centres relative to HCL and the optical centre distance.	30 mins
B	Frame measurements and materials	1 hour total
	Candidates will be required to measure and record:	
B1	A range of measurements for a fixed pad bridge frame, regular bridge frame and a frame with pads on arms.	30 mins
B2	Identify five frame materials and list their properties, construction and adjustment features.	30 mins
C	Spectacle fitting and facial measurements	1 hour total
C1	Candidates will be required to demonstrate their ability to: <ul style="list-style-type: none">• Adjust a plastics material frame to fit a patient, and discuss relevant tools.• Adjust a metal frame to fit a patient, and discuss relevant tools.• Adjust a rimless frame to fit a patient, and discuss relevant tools.	10 mins 10 mins 10 mins
C2	Take a full set of facial measurements from a patient.	30 mins
D	Single vision prescription analysis and lens description	30 mins total
	Candidates will be required to demonstrate, at preliminary level, their ability to discuss and interpret a variety of single vision prescriptions and prescribers' comments as well as a verbal description of three lenses: <ul style="list-style-type: none">• General type• Material• Form• Edge finish• Additional features	

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A1: Use of lens measure

Objective: 15 minutes

To find the base curve, cross curve and sphere curve on two uncut lenses using the lens measure provided.

Equipment provided: see picture opposite

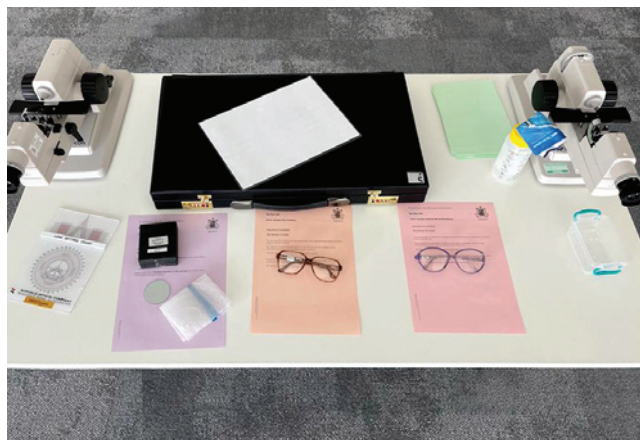
- Lens measure
- Optical flat (mirror or glass plate)
- A fine-pointed lens marking pen
- Frame ruler
- Optical protractor
- Section A1 answer sheet

Method:

1. Clearly enter your candidate number and box set number on the answer form.
2. Select lens number 1.
3. Ensure the lens measure is at zero using the optical flat provided.
4. If the reading is not zero, you must compensate your answer. If there is a fault with the lens measure you can request for it to be changed.
5. Mark the optical centre of the lens using the focimeter or protractor provided.
6. There are multiple examples of successful techniques, we will provide one method:
Place the lens measure on the front surface of the lens. The central leg should coincide with the optical centre marking, and ensure that the lens measure is perpendicular to the lens surface. Gently rotate the lens, observing the lens measure scale for variation.



7. If there is no variation then this is the spherical surface and should be recorded as the sphere curve value.
8. If the reading varies with rotation, then this is the toroidal surface.
9. For the toroidal surface, both the minimum and maximum values will need to be recorded. The lowest numerical value is the base curve and the highest is the cross curve.
10. Then repeat the above for the back surface.
11. Repeat this procedure for lens number 2.
12. Ensure that you have recorded the correct lens identification number on your answer sheet.
13. Ensure your values make sense in terms of the form of the lens.
14. If there are more than 1 scales presented on the lens measure, lens exam lens sets should be measured on the 1.523 lens scale.



Tolerances:

For the base, cross and sphere curve: ± 0.25 dioptres.

Tips:

- The front surface is usually convex, recorded as a positive value.
- The back surface is usually concave recorded as a negative value.
- The spherical surface could be either on the front OR the back surface.
- Ensure the signs of the curves make sense to the form of the lens.
- All answers should be to two decimal places.
- Be aware that some lens measures may measure more than one index, which is clearly marked on the lens measure dial.
- Aim for 5 mins per lens allowing 5 mins to double check your answers.
- Ensure this section is completed in the time allowed as it will be collected during the examination.

Suggested reading:

- *Ophthalmic Lenses and Dispensing* (M Jalie) Chapter 1
- *Practical Ophthalmic Lenses* (M Jalie and L Ray) Experiments 5, 19, 20

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record 24 toric lenses. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to measure and record the following details from two uncut lenses.

• base curve • cross curve • sphere curve

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

Time allowed: 15 minutes

Preliminary Qualifying Examination

Section A1

Lens Measure



Candidate Number	
------------------	--

Box Number	
------------	--

Venue	
-------	--

Date	
------	--

Lens No. 1		
Base Curve	Cross Curve	Sphere Curve

Lens No. 2		
Base curve	Cross Curve	Sphere Curve

**Please leave blank
(For Examiner's use only)**

Lens No. 1		
Total		

Lens No.2		
Total		

Total A1	
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Examiner's Signature	
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PQE Section A1 Lens Measure 08/2023

SAMPLE PAPER

Preliminary Qualifying Examination



Section A: Single vision lenses

Section A1: Lens measure revision form

Lens number 1			Lens number 2			Checked
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	
Base curve	Cross curve	Sphere curve	Base curve	Cross curve	Sphere curve	

Preliminary Qualifying Examination

Section A1: Revision notes

A large rectangular area filled with a light gray grid, resembling graph paper, intended for students to write their revision notes.



Preliminary Qualifying Examination

Section A: Single vision lenses

Section A2: Toric lenses (Focimetry)

Objective:

15 minutes

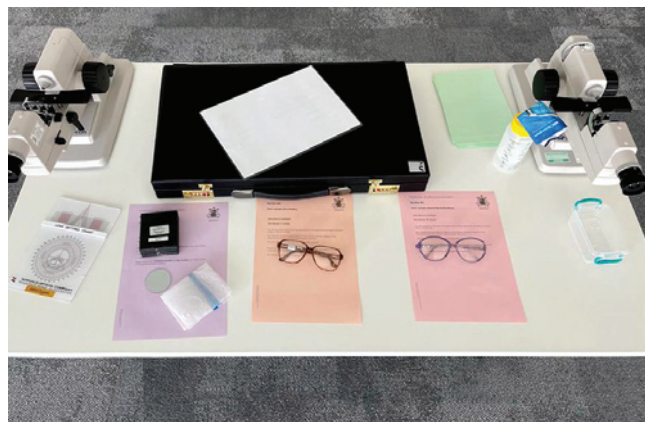
To measure and record the prescription of a pair of glazed lenses using a manual focimeter. Record the vertical position of the optical centres and the optical centre distance.

Equipment provided: *see picture opposite*

- Manual focimeter
- A fine-pointed lens marking pen
- Frame ruler
- Lens cleaner
- Cleaning cloth
- Section A2 answer sheet

Method:

1. Clearly enter your candidate number and box set number on the answer form.
2. Clearly mark your lenses R and L to avoid confusion due to exam nerves.
3. If possible, keep both eyes open when using the focimeter.
4. Set up the eyepiece of the focimeter:
 - Rotate the eyepiece anticlockwise to its maximum.
 - Ensure the target is out of focus by setting the scale to a high positive or negative value.
 - Rotate the eyepiece inwards until the graticule is just in focus.
 - Set the power scale to zero.The resulting target and graticule should both be in focus (if not, then repeat the process).
5. Place the **Right lens** into the focimeter and centre.
6. Record sphere and cylinder powers of the right lens and its axis.
7. You can record either the plus or minus cyl form but be consistent in your cyl form remaining with this format throughout your revision.
8. Record the right lens axis, and using the focimeter marking device, dot the optical centre.
9. If necessary, you may enhance the central dot with your marker pen, take care not to enlarge the dot.
10. Vertical position: of the optical centres measured above or below the horizontal centre line.
11. **Repeat for the left lens.**
12. Optical centre distance: place one optical centre on the zero of the scale and read the exact distance to the second optical centre.



Tolerances:

Sphere and Cyl measurements: ± 0.12 dioptre steps

Axis: dependent on cyl power as per British Standards

Vertical centres and optical centre distance: 1 mm

Tips:

- When practising this section aim for 5 mins per lens allowing 5 mins to double check your answers.
- Ensure all signs are present and record prescriptions to two decimal places.
- Ensure this section is completed in the time allowed as it will be collected during the examination.
- Check on the exact meaning of horizontal centre line.

Suggested reading:

- *Ophthalmic Lenses and Dispensing* (M Jalie) Chapter 1
- *Practical Ophthalmic Lenses* (M Jalie and L Ray) Experiment 49
- *Spectacle lenses Theory and Practice* (Fowler and Petrie) Chapter 6

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 10 pairs of spectacles using a manual focimeter. We advise that you have your answers checked by your supervisor in practice; we also recommend, to help you with this revision, you do your practice spectacle checking on a manual focimeter as this skill can be easily forgotten.

Instructions to candidates

You are required to determine the prescription of the spectacles provided in the box using a manual focimeter.

Also required are the vertical positions of the optical centres in relation to the horizontal centre line, and the optical centre distance.

This information should be recorded in the table below.

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

NB: The lenses must not be removed from the frame.

Time allowed: 15 minutes



Preliminary Qualifying Examination

Section A2

Toric Lenses (Focimetry)



Candidate Number		Box Number	
------------------	--	------------	--

Venue		Date	
-------	--	------	--

	Right	Left	Leave Blank	
Sphere				
Cylinder				
Axis				
Vertical position of optical centre from HCL				
Optical Centre Distance				

Total A2	
----------	--

Examiner's Signature	
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Preliminary Qualifying Examination

Section A: Single vision lenses

Section A2: Focimetry revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
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	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Preliminary Qualifying Examination



Section A2: Revision notes

A large rectangular area filled with a light gray grid pattern, intended for students to write their revision notes. The grid consists of small, uniform squares.

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A3: Toric lenses - Hand neutralisation

Objective: 30 minutes

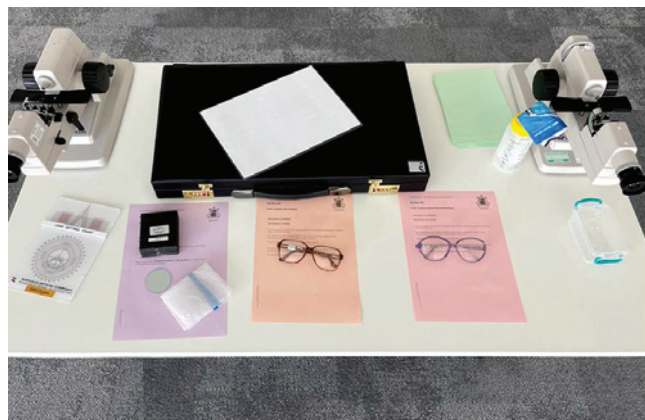
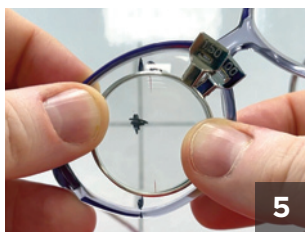
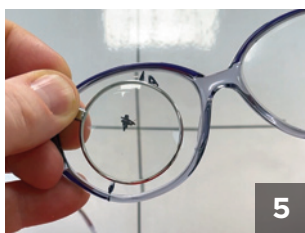
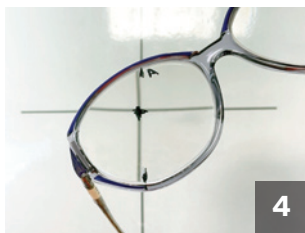
To hand neutralise both lenses of a pair of glazed spectacles and to record the prescription and the vertical position of the optical centres and the optical centre distance.

Equipment provided: *see picture opposite*

- Trial case lenses
- Cross line chart
- Optical protractor
- A fine pointed lens marking pen
- Frame ruler
- Section A3 answer sheet

Method:

1. Clearly enter your candidate number and box set on the answer form.
2. Mark your lenses R and L to avoid confusion due to exam nerves.
3. With the right lens, use the cross line chart to dot the optical centre of the lens
4. Mark the axis positions.
5. Use the trial lenses to neutralise (cancel directional movement of the crossline chart) both meridians of the lens, either with spherical lenses or a combination of spherical and cylindrical lenses depending on your preferred method.
6. It is important to systematically replace unwanted trial lenses, avoiding confusion and to ensure available for the next meridian.
7. The most positive meridian should be your sphere, measure this axis on the protractor.
8. The difference between the two meridians will be your cylinder value (it is often in negative form, but either will be accepted).
9. Repeat the above for the left lens.
10. Use the vertical and horizontal scales on the frame ruler to set the right lens at the geometric centre.
11. Read the vertical position of the optical centre, record if this falls above or below the horizontal centre line.
12. Repeat for the left lens.
13. Optical centre distance: place one optical centre on the zero of the scale and read the exact distance to the second optical centre



Tolerances:

Sphere and Cyl: ± 0.25 dipotres

Axis: 5 degrees

Optical centration: 2mm

Tips:

- Establish a routine, measure the right lens first and then the left.
- Note that the vertical position of the optical centres will vary between right and left lenses in the examination sets.
- Aim for 10 mins in total for each lens, allowing 10 mins to confirm your answers.
- Remember you are recording the power of the spectacles and not the power of the neutralising lenses.
- The protractor has 2 scales, one designed for the lenses face up and one designed for the lenses face down. Ensure you can visually estimate the axis to avoid errors when reading the scales.
- This particular task is likely to require the most practice in order to gain the required accuracy.

Suggested reading:

- *Ophthalmic Lenses and Dispensing* (M Jalie) Chapter 1
- *Practical Ophthalmic Lenses* (M Jalie and L Ray) Experiments 3, 5, 7, 15, 16, 22, 29
- *Spectacle Lenses Theory and Practice* (Fowler and Petrie) Chapter 6

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 20 pairs of spectacles using the trial lens set. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to determine the prescription of the spectacles provided in the box using a trial lens set.

Also required are the vertical positions of the optical centres in relation to the horizontal centre line, and the optical centre distance.

This information should be recorded in the table below.

Please ensure your Candidate Number and Box Number are clearly written in the spaces provided.

NB: The lenses must not be removed from the frame.

Time allowed: 30 minutes



Preliminary Qualifying Examination

Section A3

Toric Lenses (Hand Neutralisation)



Candidate Number		Box Number	
------------------	--	------------	--

Venue		Date	
-------	--	------	--

	Right	Left	Leave Blank	
Sphere				
Cylinder				
Axis				
Vertical position of optical centre from HCL				
Optical Centre Distance				

Total A3	
----------	--

**Please leave blank
(For Examiners Use only)**

A1 Total	A2 Total	A3 Total	Total A3

Examiner's Signature	
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PQE Section A3 Toric Lens (Hand Neutralisation) 08/2023

Preliminary Qualifying Examination

Section A: Single vision lenses

Section A3: Hand neutralisation revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
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Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
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Cylinder		
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Vertical position of optical centre from HCL		
Optical Centre Distance		
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Vertical position of optical centre from HCL		
Optical Centre Distance		
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Cylinder		
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Vertical position of optical centre from HCL		
Optical Centre Distance		
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Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
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Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
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Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Section A3: Hand neutralisation revision form

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

	Right	Left
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Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
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Vertical position of optical centre from HCL		
Optical Centre Distance		
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Vertical position of optical centre from HCL		
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Optical Centre Distance		
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Vertical position of optical centre from HCL		
Optical Centre Distance		
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	Right	Left
Sphere		
Cylinder		
Axis		
Vertical position of optical centre from HCL		
Optical Centre Distance		
Checked		

Preliminary Qualifying Examination

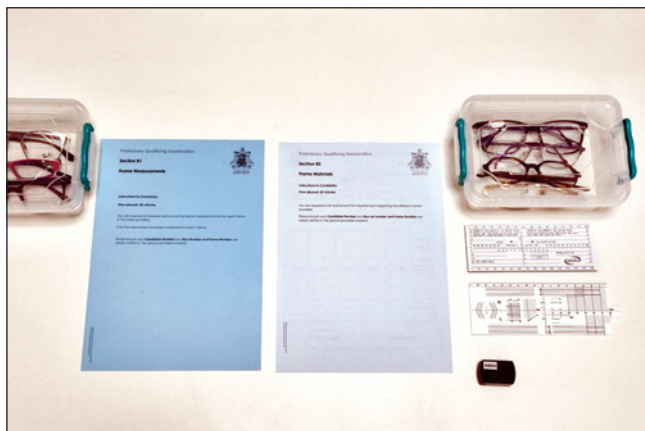
Section A3: Revision notes

A large rectangular area filled with a light gray grid, resembling graph paper, intended for students to write their revision notes.



Preliminary Qualifying Examination

Section B1: Frame measurements and materials



Section B1: Frame measurements

Objective:

30 minutes

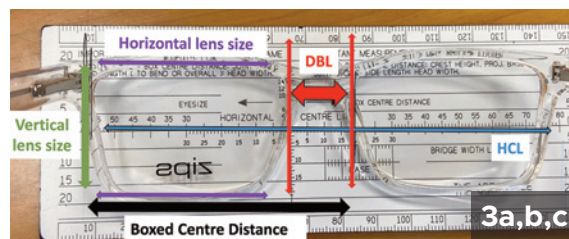
To record a specified range of measurements for a regular bridge frame, a fixed pad bridge frame and a metal frame with pads on arms using a frame ruler.

Equipment provided: *see picture above*

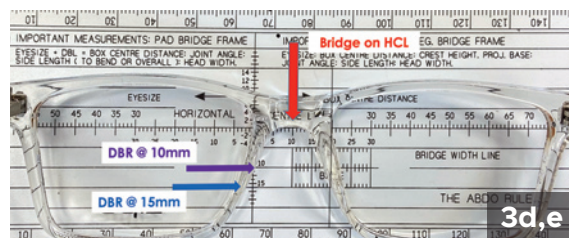
- Frame ruler
- B1 answer sheet

Method

1. Clearly enter your candidate number and box set number on the answer form.
2. Start with the regular bridge frame, working through the frames in the order they are listed on the answer form, to avoid confusion with exam nerves.
3. For the regular bridge frame you will need to measure:
 - a. **Boxed lens size**; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; an allowance for the bevel for both horizontal and vertical measurements should be added here.
 - b. **Distance between lenses (DBL)**; the distance between the nearest apices of the two lenses. Note; subtract an allowance for the bevel.
 - c. **Boxed Centre Distance (BCD)**; horizontal distance between the two boxed centres (the intersection of horizontal and vertical lines of each box, found by $HLS + DBL$).

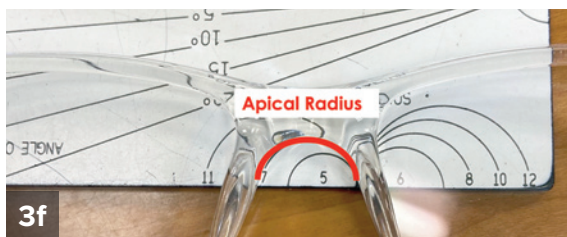


- d. **Distance Between Rims (DBR)@10**; the horizontal distance between the nasal surfaces of both rims, measured at 10mm below the midpoint of the lower edge of the bridge surface.
- e. **Distance Between Rims (DBR)@15**; the horizontal distance between the nasal surfaces of the rims, measured at 15mm below the midpoint of the lower edge of the bridge surface.

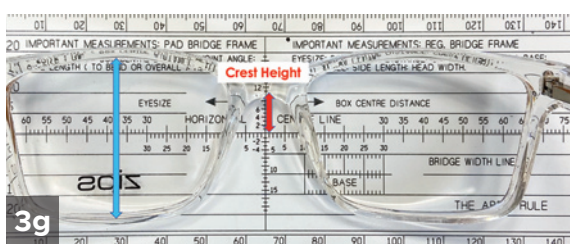


Preliminary Qualifying Examination

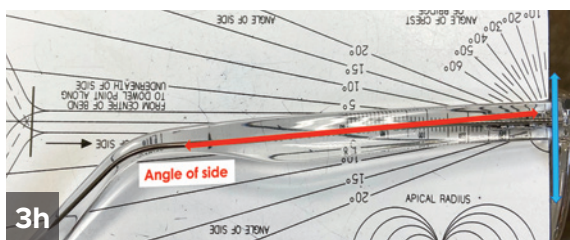
Section B1: Frame measurements and materials - *continued*



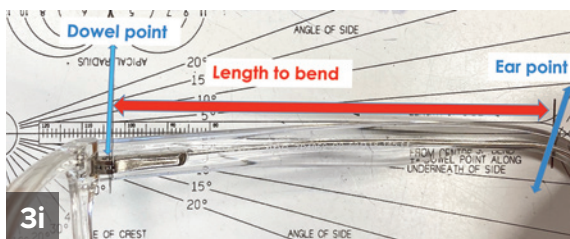
- f. **Apical Radius**; radius of the arc forming the lower edge of the bridge viewed perpendicularly to the back plane of the front.



- g. **Crest Height**; vertical distance from the horizontal centre line of the frame to the midpoint of the lower edge of the bridge.

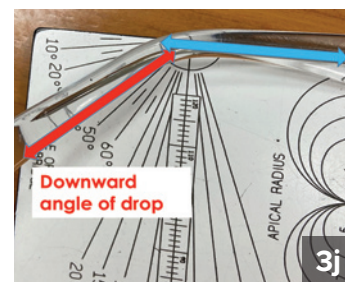


- h. **Angle of side**; vertical angle between a normal to the back plane of the front and the line of the side when opened. Right and left measurements required here.



- i. **Length to bend**; distance between the dowel point and the ear point. Right and left measurements required here.

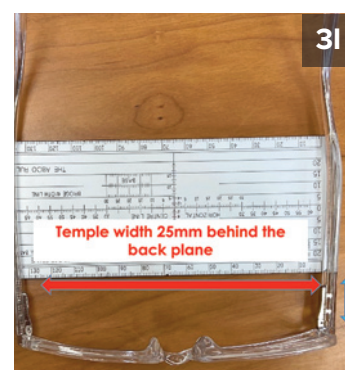
- j. **Downward angle of drop**; downward inclination of the drop from the line of the side. Right and Left measurements required here.



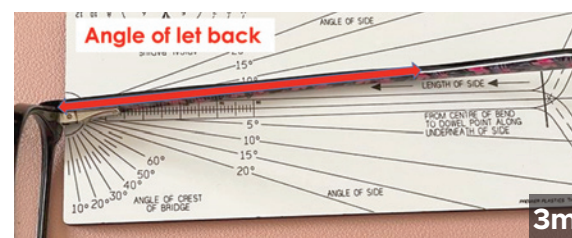
- k. **Frame head width**; distance between the sides at the ear points.



- l. **Frame temple width**; distance between the sides 25mm behind the back plane of the front.



- m. **Angle of let-back**; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.

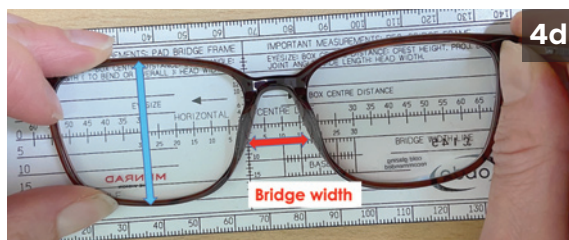


Preliminary Qualifying Examination

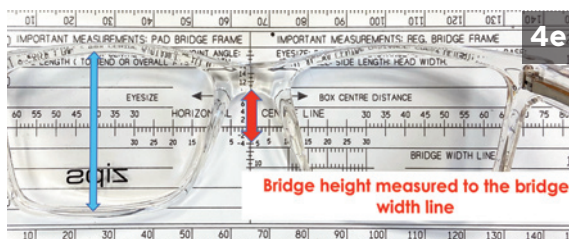
Section B1: Frame measurements and materials - *continued*

4. For the fixed pad bridge frame you will need to measure:

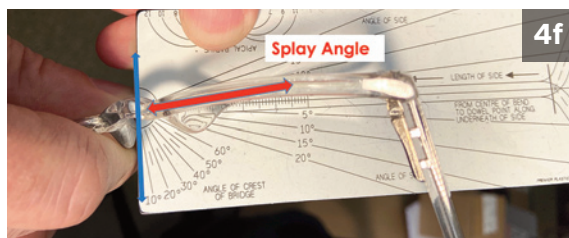
- Boxed lens size; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; an allowance for the bevel for both horizontal and vertical measurements should be added here.
- Distance between lenses (DBL); the distance between the nearest points of the apices of the two lenses. Note; subtract an allowance for the bevel.
- Boxed Centre Distance (BCD); horizontal distance between the two boxed centres (the intersection of horizontal and vertical centre lines of each box).



- Bridge width; minimum distance between the pad surfaces of the frame measured along the bridge width line, 5mm below HCL.

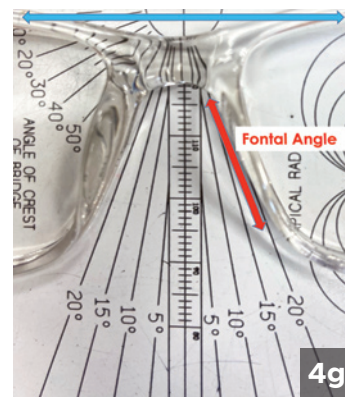


- Bridge height; vertical distance from the bridge width line to the intersection point of the vertical symmetry axis with the lower edge of the bridge.



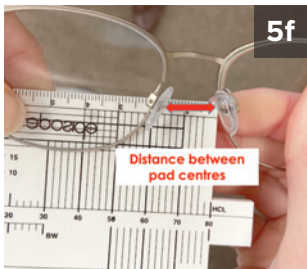
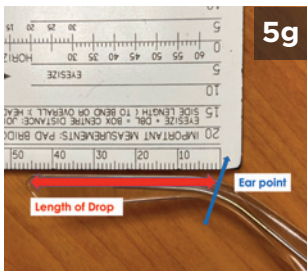
- Splay angle of pad; angle between the pad plane and a normal to the back plane of the front.

- Frontal angle of pad; angle between the vertical and the line of intersection of the pad plane with the back plane of the front.



- Total length of side (this will be either a skull grip or a drop end side); distance between the dowel point and the tip. Right and Left measurements required here.
- Frame head width; distance between the sides at the ear points.
- Frame temple width; distance between the sides 25mm behind the back plane of the front.
- Angle of let-back; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.

Section B1: Frame measurements and materials - *continued*

5. For the metal pads on arms frames you will need to measure:
 - a. Boxed lens size; the dimensions of the rectangle formed by the horizontal and vertical tangents to the lens shape. Note; an allowance for the bevel for both horizontal and vertical measurements should be added here.
 - b. Distance between lenses (DBL); the distance between the nearest points of the apices of the two lenses. Note; subtract an allowance for the bevel.
 - c. Boxed Centre Distance (BCD); horizontal distance between the two boxed centres (the intersection of horizontal and vertical centre lines of each box).
 - d. Angle of side; vertical angle between a normal to the back plane of the front and the line of the side when opened. Right and left measurements required here.
 - e. Length to bend; distance between the dowel point and the ear point. Right and left measurements required here.
 - f. Distance between pad centres; horizontal distance between the geometric centre of each pad. 
 - g. Length of drop; distance from the ear point to the extreme end of the side. Right and left measurements required here. 
 - h. Downward angle of drop; downward inclination of the drop from the line of the side. Right and left measurements required here.
 - i. Frame head width; distance between the sides at the ear points.
 - j. Frame temple width; distance between the sides 25mm behind the back plane of the front.
 - k. Angle of let-back; horizontal angle between the inner surface of the fully opened side, adjacent to the joint, and a normal to the back plane of the front. Right and left measurements required here.

Tolerances:

Frame lens measurements: $\pm 1\text{mm}$

LTB, Distance between pad centres, length of drop: $\pm 2\text{mm}$

Head and temple width measurements: $\pm 5\text{mm}$

Angle of side and downward angle of drop: ± 2.5 degrees

Splay and frontal angle of pad: ± 5 degrees

Tips:

- It will help you to maintain a routine to measure the right lens/side first and then the left.
- Aim for 8 mins in total for each frame, allowing 6 mins to confirm your answers.
- Your answer form will have unnecessary measurements blocked out, so you will know on the day which measurements are required for each frame.
- Remember the frames have two sides, so most side measurements will require 2 results.
- Horizontal centre line (HCL) is the accepted term. The term 'datum' is now obsolete.

Suggested reading:

- *Spectacle Frames and their Dispensing* (Obstfeld) Chapter 12
- *British Standards Extracts* (ABDO College)
- *Practical Dispensing* (A Griffiths) Chapter 20

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 12 spectacle frames. We advise that you have your answers checked by your supervisor in practice.

It will help you to maintain a routine to measure the right lens first and then the left.

You are required to measure and record the frame measurements list for each frame in the table provided.

Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.



Section B1

Frame Measurements

Candidate Number		Box Number	
Venue		Date	
		Leave Blank	
Measurement	Regular Bridge Frame H V	Fixed Pad Bridge Frame H V	Frame with Pads on Arms H V
Boxed lens size			
DBL			
Boxed centre distance			
DBR @ 10			
DBR @ 15			
Apical Radius			
Projection			
Crest height			
Angle of side	R L		R L
Length to bend	R L		R L
Bridge width			
Bridge height			
Distance between pad centres			
Splay angle of pad			
Frontal angle of pad			
Length of drop			R L
Total length of side		R L	
Downward angle of drop	R L		R L
Head width			
Temple width			
Angle of let-back	R L	R L	R L
		Total	
Examiner's Signature		Grand Total	

Preliminary Qualifying Examination



Examination content

Section B1: Frame measurements revision form

Measurement	Regular bridge frame		Regular bridge frame		Fixed pad bridge frame		Fixed pad bridge frame		Frame with pads on arms		Frame with pads on arms	
Boxed lens size	H	V	H	V	H	V	H	V	H	V	H	V
DBL												
Boxed centre distance												
DBR @ 10												
DBR @ 15												
Apical Radius												
Projection												
Crest height												
Angle of side	R	L	R	L					R	L	R	L
Length to bend	R	L	R	L					R	L	R	L
Bridge width												
Bridge height												
Distance between pad centres												
Splay angle of pad												
Frontal angle of pad												
Length of drop									R	L	R	L
Total length of side					R	L	R	L				
Downward angle of drop	R	L	R	L					R	L	R	L
Head width												
Temple width												
Angle of let-back	R	L	R	L	R	L	R	L	R	L	R	L

Checked							
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Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B1: Frame measurements revision form

Measurement	Regular bridge frame		Regular bridge frame		Fixed pad bridge frame		Fixed pad bridge frame		Frame with pads on arms		Frame with pads on arms	
Boxed lens size	H	V	H	V	H	V	H	V	H	V	H	V
DBL												
Boxed centre distance												
DBR @ 10												
DBR @ 15												
Apical Radius												
Projection												
Crest height												
Angle of side	R	L	R	L					R	L	R	L
Length to bend	R	L	R	L					R	L	R	L
Bridge width												
Bridge height												
Distance between pad centres												
Splay angle of pad												
Frontal angle of pad												
Length of drop									R	L	R	L
Total length of side					R	L	R	L				
Downward angle of drop	R	L	R	L					R	L	R	L
Head width												
Temple width												
Angle of let-back	R	L	R	L	R	L	R	L	R	L	R	L

Checked							
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Preliminary Qualifying Examination

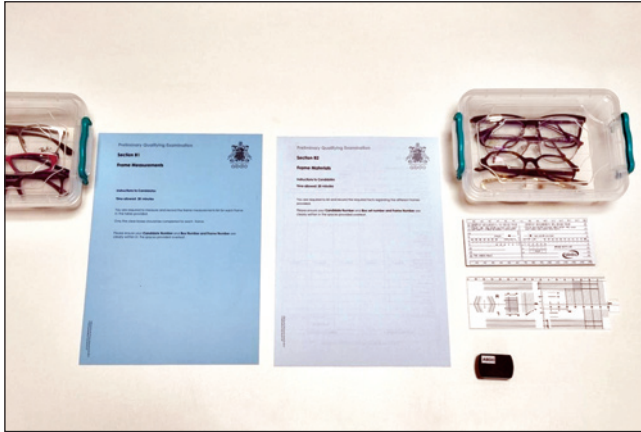


Section B1: Revision notes

A large rectangular area filled with a light gray grid pattern, intended for students to write their revision notes.

Preliminary Qualifying Examination

Section B: Frame measurements and materials



Section B2: Frame materials

Objective:

30 minutes

To identify the material, manufacturing and construction techniques and associated repair/adjustment properties of five frames; these may be current or obsolete frame materials.

Equipment provided: *see picture above*

- Hand magnifier
- Section B2 answer sheet

Method:

1. Clearly enter your candidate number and box set number on the answer form.
2. Select the frame from the box set that corresponds to the number at the top of each column.
3. Touch the frame and look at the markings to be certain of the material (markings have **not** been removed from the frames).
4. Identify the material.
5. Note manufacturing processes for identified material.
6. Note adjustment or repair features for identified material (tool types used are not needed here).
7. Note if the identified material is hypoallergenic or not.
8. Short, bullet point answers are required.
9. **Use the magnifier to double check any frame markings that are difficult to see.**
10. Note the distinguishing features of the frame (frame style, side type, bridge type, method of Joint attachment, lens retention, lens edge requirement).

Tips:

- Aim for 5 mins in total for each frame, allowing 5 mins to confirm your answers.
- Research the frame materials and know the main distinguishing features.
- Look through your practice spectacle recycling box and see how many materials you can identify.

Suggested reading:

- *Practical Dispensing*
(A Griffiths) Chapter 19
- *Spectacle Frames and their Dispensing*
(Obstfeld) Chapters 7, 8

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters of 15 spectacle frames. We advise that you have your answers checked by your supervisor in practice.

Instructions to candidates

You are required to list and record the required facts regarding the different frames provided.

Time allowed: 30 minutes



Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.



Preliminary Qualifying Examination Section B2 Frame Materials

Candidate Number	Box Set				
Venue	Date				
	Frame A	Frame B	Frame C	Frame D	Frame E
Identify material					
State 5 facts including material properties, manufacturing process, adjustment/ repair features and hypoallergenic nature (tool types are not needed here)					
Describe frame style					
State Side type					
State Bridge type					
Method of Joint attachment					
Lens retention					
Lens edge requirement					
Total					
Two examiners' signatures needed if reduced by 50%					Reduced by 50% : YES/NO
Examiners Signature					Grand Total

PQE Section B2 Frame Materials 08/2023

Preliminary Qualifying Examination

Section B: Frame measurements and materials

Section B2: Frame materials revision form

Required information	Frame A	Frame B	Frame C	Frame D	Frame E
Identify material					
State 5 facts including material properties, manufacturing process, adjustment/ repair features and hypoallergenic nature (tool types are not needed here)					
Describe frame style					
State side type					
State bridge type					
Method of Joint attachment					
Lens retention					
Lens edge requirement					
Checked					

Section B2: Frame materials revision form

Required information	Frame A	Frame B	Frame C	Frame D	Frame E
Identify material					
State 5 facts including material properties, manufacturing process, adjustment/ repair features and hypoallergenic nature (tool types are not needed here)					
Describe frame style					
State side type					
State bridge type					
Method of Joint attachment					
Lens retention					
Lens edge requirement					
Checked					

Preliminary Qualifying Examination

Section B2: Revision notes

A large rectangular area filled with a fine grid of light gray lines, intended for students to write their revision notes. The grid is approximately 30 units wide by 40 units high.



Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements



Section C1: Spectacle fitting

Objective:

30 minutes

To straighten and fit a plastic, metal and rimless spectacle frame to three different patients.

Equipment provided: see picture above

- Frame Heater
- A selection of frame adjustment and alignment pliers
- Screwdrivers
- Lens cleaner
- Tissues

Method:

1. Review the frame, place it on a flat surface with the tips facing upwards.
2. Evaluate the adjustments required.
3. Put the frame on the patients face.
4. Explain to the examiner what is wrong with the frame and the fit.
5. Explain how you are going to adjust the frame.
6. Explain which tools you will be using, if appropriate
7. Straighten the frame using the relevant tools and heater, taking it back to its original form.
8. Put the frame on the patient and view the main fitting points.
9. Make the necessary adjustments to fit the frame to the patient.
10. You will not be required to shorten the length of side by cutting and filing, as there will not be time. Discuss with the examiner what further adjustments you would do in practice if you had more time.
11. You will be expected to know the names of the tools you are using and be able to demonstrate their 'safe' use to the examiner.
12. The resulting frames should be cleaned and fitted to wear without causing discomfort or pressure marks to the patient.

Tips:

- Allow approximately 8 mins to complete each fitting allowing 2 mins for discussions with the examiner.
- Ensure the spectacle lenses have been cleaned and are cooled sufficiently to safely fit on the patient
- If there are particular hand tools in practice you are comfortable using, you are welcome to bring them with you.
- Don't forget you will be working with real patients. Talk to them as you would in practice to find out if the frames are comfortable and to help try and relax you.
- There is nothing for you to write down in this examination, the examiners will assess the final fit of the spectacles on the patients face and the methods you used to get there.
- Remember, this is the skill you will use in practice every day, think about the adjustments you make when you are with your patients in practice.

Suggested reading:

- *Spectacle Frames and their Dispensing* (Obstfeld) Chapter 16
- *Practical Dispensing* (A Griffiths) Chapter 21

Preliminary Qualifying Examination

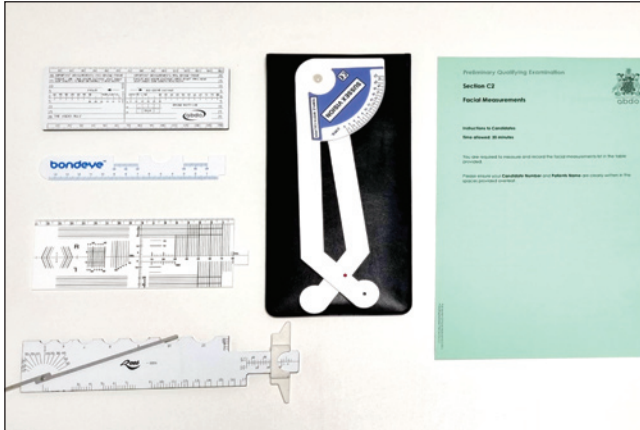


Section C1: Revision notes

A large rectangular area filled with a light gray grid pattern, intended for students to write their revision notes. The grid consists of small, uniform squares.

Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements



Section C2: Facial measurements

Objective: 30 minutes

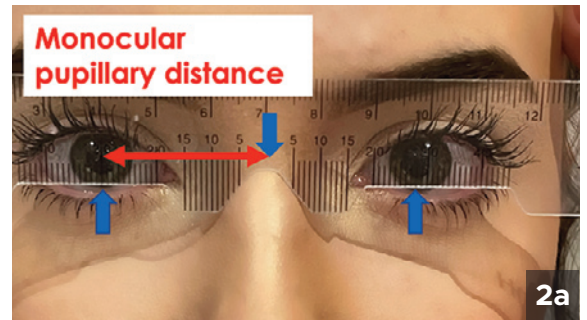
To take a set of facial measurements using the facial gauge from the patient provided.

Equipment provided: see picture above

- Facial Gauge
- PD ruler
- Frame ruler
- Head calipers
- Section C2 answer sheet
- Frame for near CD

Method:

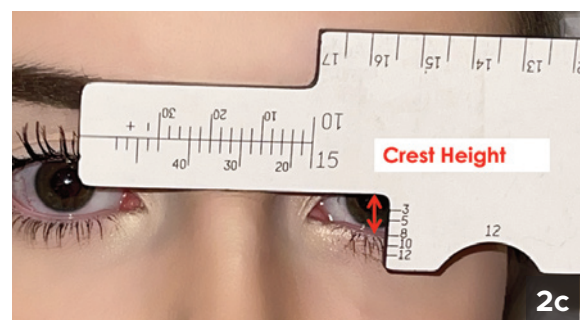
1. Clearly enter your candidate number and your patients name on the answer form.
2. List the relevant measurements on the form provided:
 - a. Monocular pupillary distance; from the centre of the right pupil to the centre of the bridge. Right and left measurements required here.



- b. Monocular near centration; measured from the centre of the right pupil to the centre of the bridge whilst the patient is fixating on an object at the required viewing distance. Right and left measurements required here.



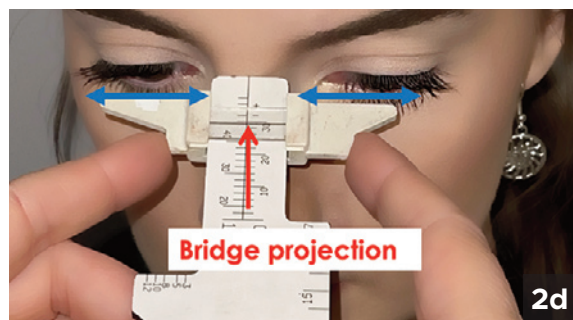
- c. Crest height; the distance in the assumed spectacle plane, between lower limbus point and nasal crest. Right and left measurements required here.



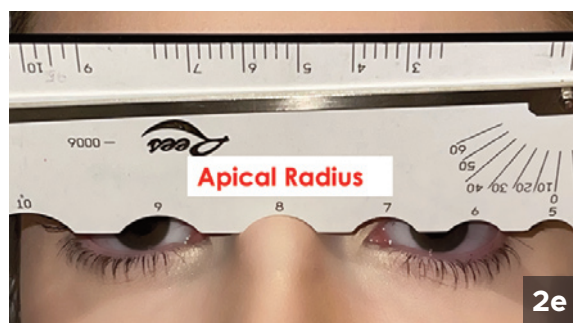
Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements - *continued*

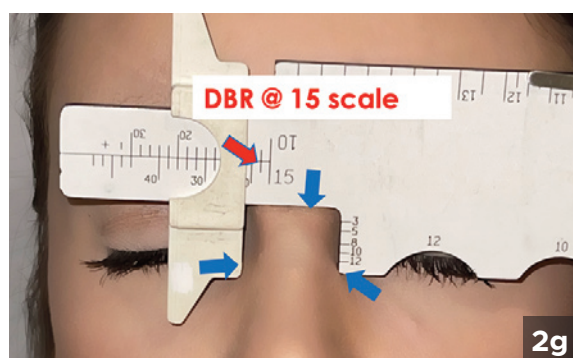
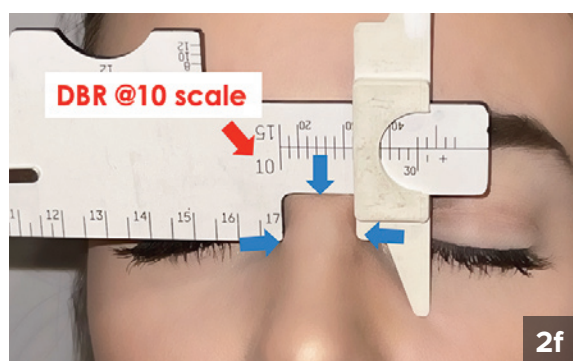
- d. Bridge projection; the horizontal distance between the assumed spectacle plane and the eyelashes in their most protruding position.



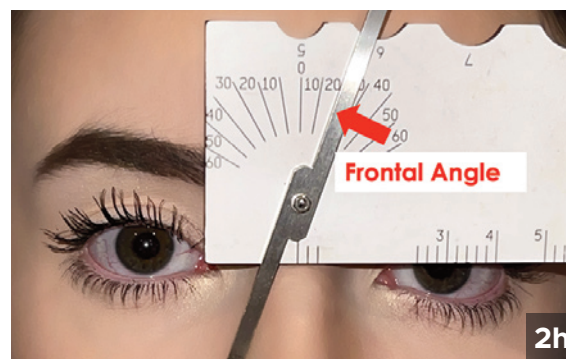
- e. Apical radius; the arc of the nasal crest, in the assumed spectacle plane.



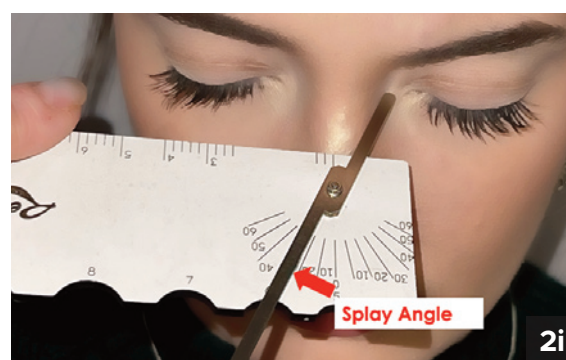
- f. Distance between rims @10mm; the width of the nose in the assumed spectacle plane at 10mm below the nasal crest.



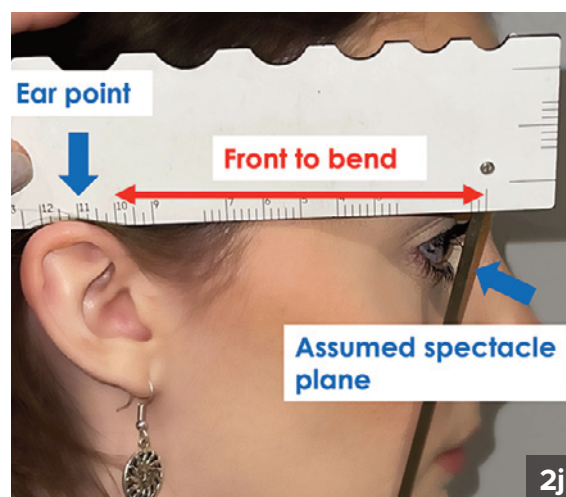
- g. Distance between rims @15mm; the width of the nose in the assumed spectacle plane at 15mm below the nasal crest.
- h. Frontal angle; the angle between the vertical in the assumed spectacle plane and a parallel to the assumed bearing surface on the side of the nose. Right and left measurements required here.



- i. Splay angle; the angle between the assumed pad bearing area on the nose, and a normal to the assumed spectacle plane. Right and left measurements required here.

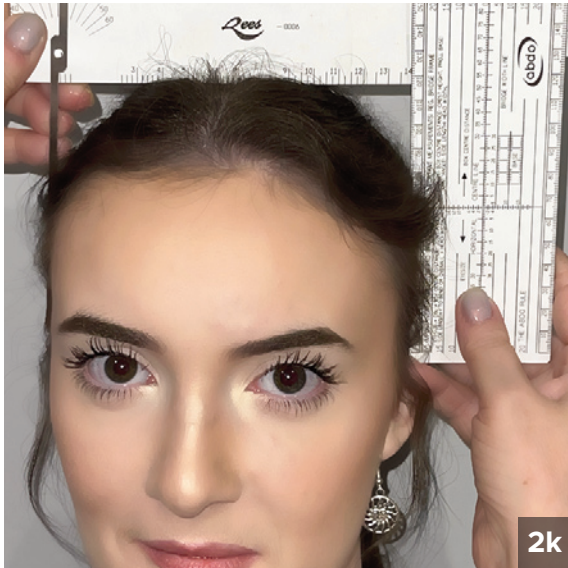


- j. Front to bend; the distance from the assumed spectacle plane to the ear point. Right and left measurements required here.



Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements - *continued*



Tolerances used:

PD's, Apical radius and DBR@10&15: ± 1 mm

Crest and bridge projection: ± 2 mm

Frontal and splay angle: ± 5 degrees

Front to bend and head width: ± 3 mm

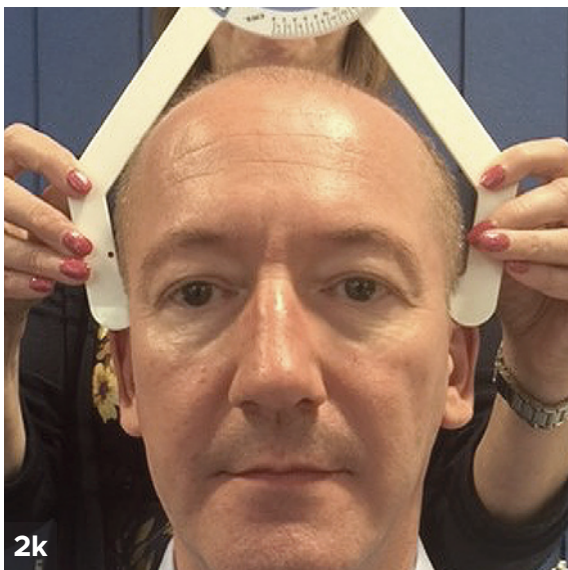
Tips:

- Allow approximately 20 mins for a full set of facial measurements, giving you 10 mins to double check your work.
- Don't forget you will be working with real patients from the eye clinic, talk to them as you would in practice.
- This particular task requires the most practice in order to gain the required accuracy.

Suggested reading:

- *Practical Dispensing* (A Griffiths) Chapter 10
- *Spectacle Frames and their Dispensing* (Obstfeld) Chapter 12

The next two pages show the form you will see in the examination. Following that, we have created a table for you to practice and record the parameters from 12 subjects. We advise that you practice first on your colleagues and have your answers checked by your supervisor in practice.



k. Head width; the horizontal distance between the ear points of the head.

3. Remember to list both measurements where R and L is stated on the answer form and always state your answer in mm.

Instructions to candidates

You are required to list and record the required facts regarding the different frames provided.

Time allowed: 30 minutes



Please ensure your Candidate Number and Box Number and Frame Number are clearly written in the spaces provided.

Preliminary Qualifying Examination

Section C2

Facial Measurements



Candidate Number	
------------------	--

Patient	
---------	--

Venue	
-------	--

Date	
------	--

Measurement	Result		Leave Blank	
Monocular pupillary distance	R	L	R	L
Monocular near centration distance	R	L	R	L
Crest height	R	L	R	L
Bridge projection				
Apical radius				
Distance between rims at 10				
Distance between rims at 15				
Frontal angle	R	L	R	L
Splay angle	R	L	R	L
Front to bend	R	L	R	L
Head width				

Total	
-------	--

Examiner's Signature	
----------------------	--

PQE Section C2 Facial Measurements 08/2023

Preliminary Qualifying Examination

Section C: Spectacle fitting and facial measurements

Section C2: Facial measurements revision forms

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Section C2: Facial measurements revision forms

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Measurement	Result		Result		Result	
Monocular pupillary distance	R	L	R	L	R	L
Monocular near centration distance	R	L	R	L	R	L
Crest height	R	L	R	L	R	L
Bridge projection						
Apical radius						
Distance between rims at 10						
Distance between rims at 15						
Frontal angle	R	L	R	L	R	L
Splay angle	R	L	R	L	R	L
Front to bend	R	L	R	L	R	L
Head width						
Checked						

Preliminary Qualifying Examination

Section C2: Revision notes

A large rectangular area filled with a light gray grid, resembling graph paper, intended for students to write their revision notes.



Preliminary Qualifying Examination

Section D: Prescription Analysis



Section D: Prescription Analysis

Objective:

30 minutes

To demonstrate your skills in prescription analysis and lens description, communicating effectively at the required levels for the given prescription scenarios.

Equipment provided: *see picture opposite*

- Scrap paper
- Spare pens
- Section D prescription book

Method:

1. Take your time to look at each prescription – use a methodical approach such as the four-point plan (below) this will help you practice and put your thoughts into some order;
 - a. What is the prescription for?
 - b. Are there any errors or any information missing?
 - c. What could be a potential problem?
 - d. How could you solve the problem?
2. Be prepared to calculate near prescriptions and addition powers.
3. Be able to transpose from one cyl form to another.
4. Be able to complete a toric transposition
5. Consider what form of lens might be appropriate.
6. You may be asked to discuss the following topics;
 - a. Prisms and prism splitting
 - b. Safety lenses
 - c. Tinted lenses
 - d. High power lenses
 - e. Vertex distance
 - f. Terms relating to ametropia
 - g. Lens form

Tips:

- Don't forget to speak to the examiners, they will encourage you, but you need to talk to them so they are able to award marks.
- Practice prescription analysis with your supervisor; when you are given a new patient and prescription in store, discuss what information you can gain from the prescription and what the dispensing outcomes might be.
- Examiners may ask you to do small calculations, use the scrap paper provided to be certain of your answers, calculators are permitted to help with exam nerves.
- It is perfectly acceptable to tell the examiner if you do not know the answer, they will move you on to something else that can hopefully gain you marks.
- Examiners are looking for clear answers, if you give them a choice of answers in the hope one may be correct, they will ask you to tell them specifically one answer.

The next three pages are examples of prescriptions for you to practice with. We advise that you have your answers checked by your supervisor in practice.

Section D: Prescription analysis revision forms

R	Sph	Cyl	Axis	Prism	Base
Dist	-5.00			2	UP
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-5	0.75	95°		
Add					

NOTES: PRESCRIPTION ERRORS

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

1

R	Sph	Cyl	Axis	Prism	Base
Dist	-1.50	-0.50	95		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-1.25	-0.75	90		
Add					

NOTES: SAFETY LENSES

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

2

Preliminary Qualifying Examination

Section D: Prescription Analysis

Section D: Prescription analysis revision forms

R	Sph	Cyl	Axis	Prism	Base
Dist	+1.75	-0.25	180		
Add	+3.00	-0.25	180		

L	Sph	Cyl	Axis	Prism	Base
Dist	+1.50				
Add	+2.75				

NOTES: ADDITION, TRANSPOSITION

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

3

R	Sph	Cyl	Axis	Prism	Base
Dist	-10.00	-1.00	95		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	-10.50	-1.25	90		
Add					

NOTES: DISPENSING HIGH PRESCRIPTIONS

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

4

Section D: Prescription analysis revision forms

R	Sph	Cyl	Axis	Prism	Base
Dist	+2.00	-0.75	15		
Add					

L	Sph	Cyl	Axis	Prism	Base
Dist	+2.25	-1.00	18		
Add					

NOTES: TINTED FOR HOLIDAY

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

5

R	Sph	Cyl	Axis	Prism	Base
Dist	+0.50	-0.25	85		
Inter	+1.00	-0.25	85		
Add	+2.00	-0.25	85		

L	Sph	Cyl	Axis	Prism	Base
Dist	+0.25	DS			
Inter	+0.75	DS			
Add	+1.75	DS			

NOTES: OCCUPATIONAL DISPENSING

- What is the prescription for?
- Are there any errors or any information missing?
- What could be a potential problem?
- How could you solve the problem?

6

Preliminary Qualifying Examination

Section D: Revision notes

A large rectangular area filled with a light gray grid, resembling graph paper, intended for students to write their revision notes.

References

Ophthalmic Lenses and Dispensing: (M Jalie)
Practical Ophthalmic Lenses: (M Jalie and L Ray)
Spectacle Lenses Theory and Practice: (Fowler and Petrie)
Practical Dispensing: (A Griffiths)
Spectacle Frames and Their Dispensing: (H Obstfeld, 1977)
British Standards Extracts: (ABDO College 2014)

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Please let us know your thoughts on any areas we can improve on for future publications at the email addresses below.

Authors contact details

Miranda Richardson Bsc (Hons) FBDO
Head of Professional Qualifications & Education
Email: mrichardson@abdo.org.uk

Dean Dunning MEd PG DipEd FBDO CL Cert Ed FBCLA FIACLE
Deputy Head of Professional Qualifications and Examinations
Email: ddunning@abdo.org.uk



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ABDO Examinations and Registration

Unit 1, Court Lodge Offices, Godmersham Park
Godmersham, Canterbury, Kent CT4 7DT

Telephone 01227 732 921

Email examinations@abdo.org.uk

website www.abdo.org.uk