



**SECONDARY 1 SCIENCE
WA3 CRASH COURSE**

LIGHT

**Conducted by:
Ms. Devina Beins**



THIS CRASH COURSE IS FOR YOU IF...



You just don't understand Light ??

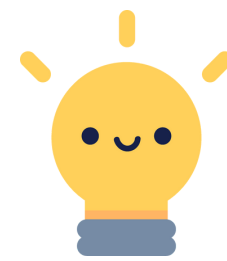


You want to stop getting
Light questions wrong

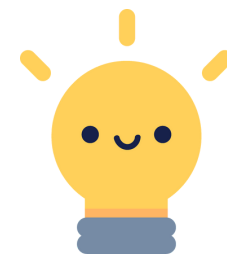


You want to stop wasting time
revising for Light ineffectively

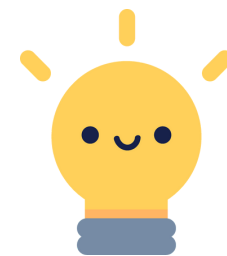
BY THE END OF THIS CRASH COURSE...



Finally understand
Light concepts



Learn & master 6
Light question types



Avoid common mistakes
to bag the A1

PIQUE YOUR BRAINS QUIZ

How well do you know Light?

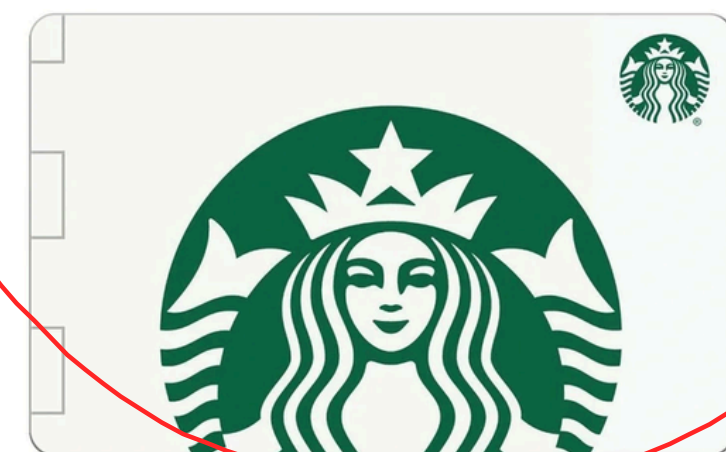
1 SCAN

Join the quiz!



2 WIN

Top 3 students will win a **\$10 Starbucks gift card** from us

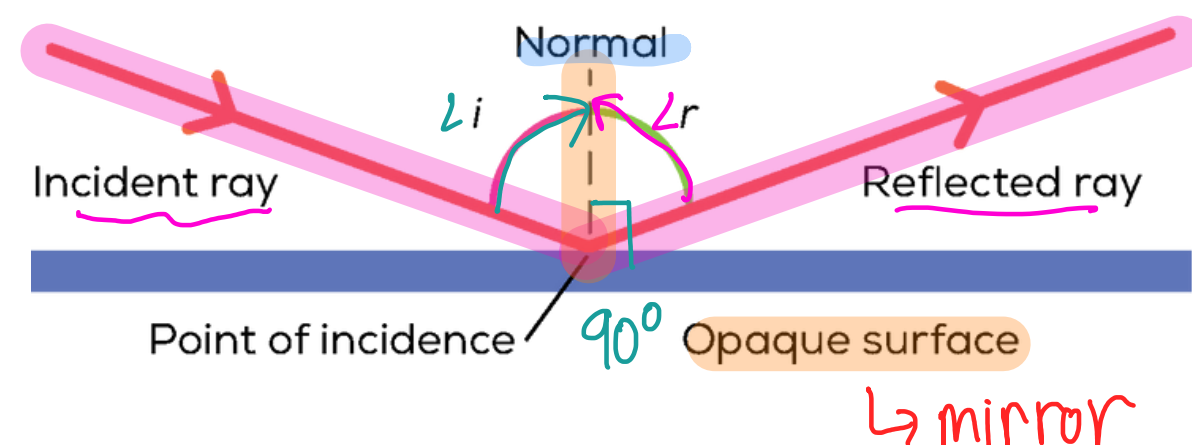


Concept Recap!

RAY MODEL OF LIGHT

①

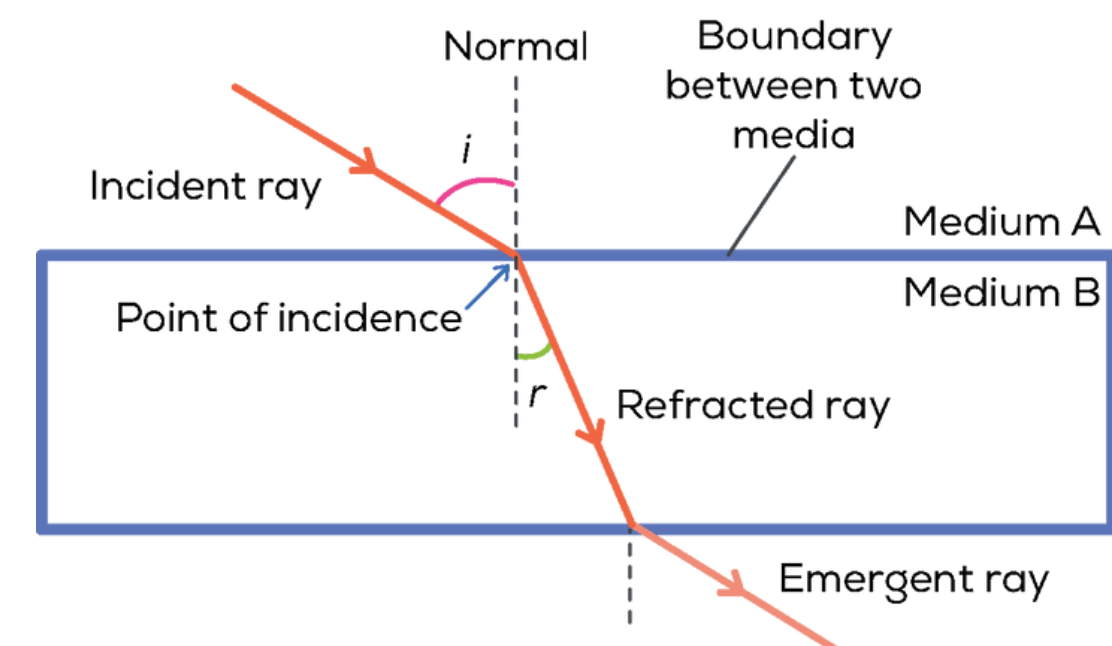
Reflection



Bouncing of light rays
as it hits a surface

②

Refraction

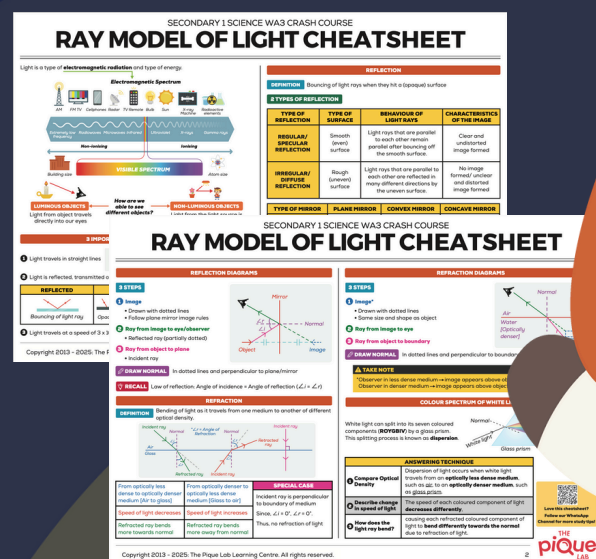


Bending of light as it travels
through mediums of different
optical density.

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The cheatsheet will be uploaded **after**
the crash course!



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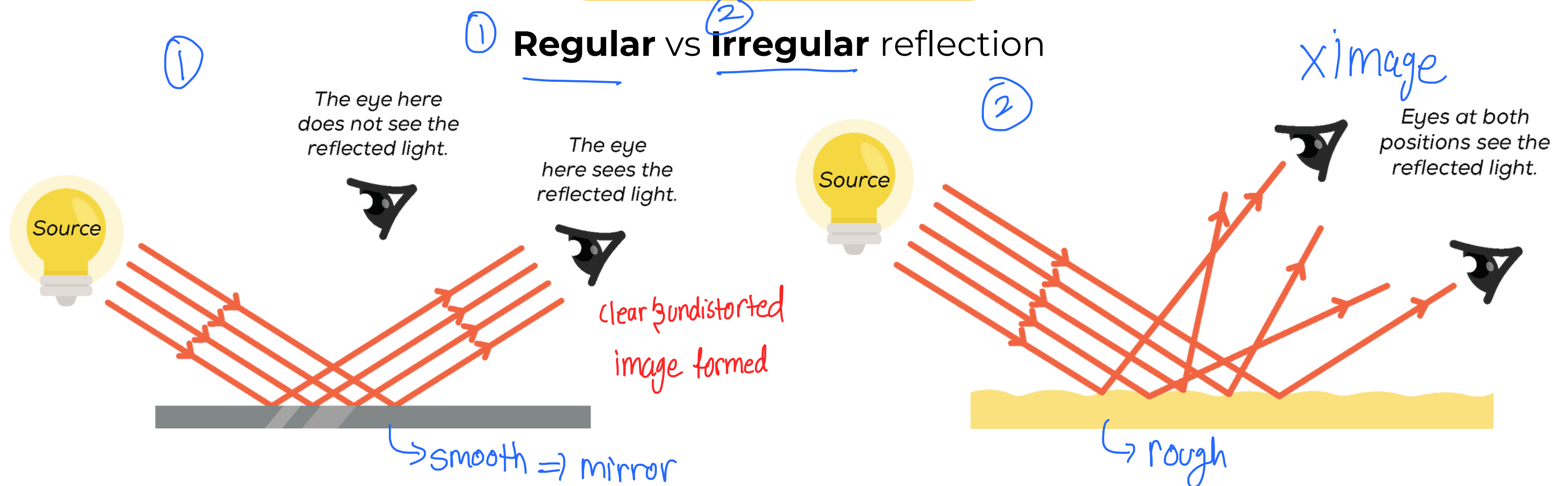
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REFLECTION

Bouncing of light rays as it hits a surface

Types of Reflection

① Regular vs ② Irregular reflection



REFLECTION

Bouncing of light rays as it hits a surface

Types of Mirrors - Properties of the image formed



Plane mirror



Concave mirror

↳ magnify object



Convex mirror

↳ Wider field of vision

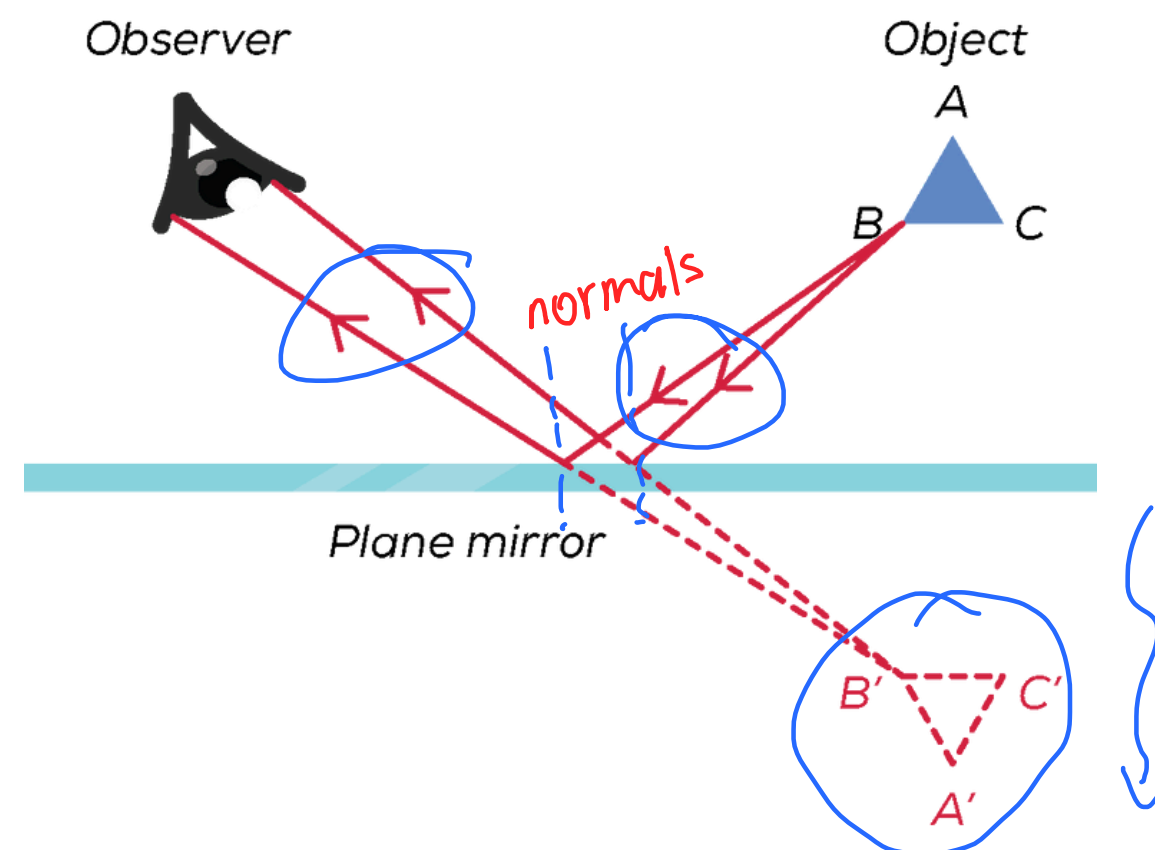
REFLECTION

Bouncing of light rays as it hits a surface

Double ray diagram

Reflection Diagrams

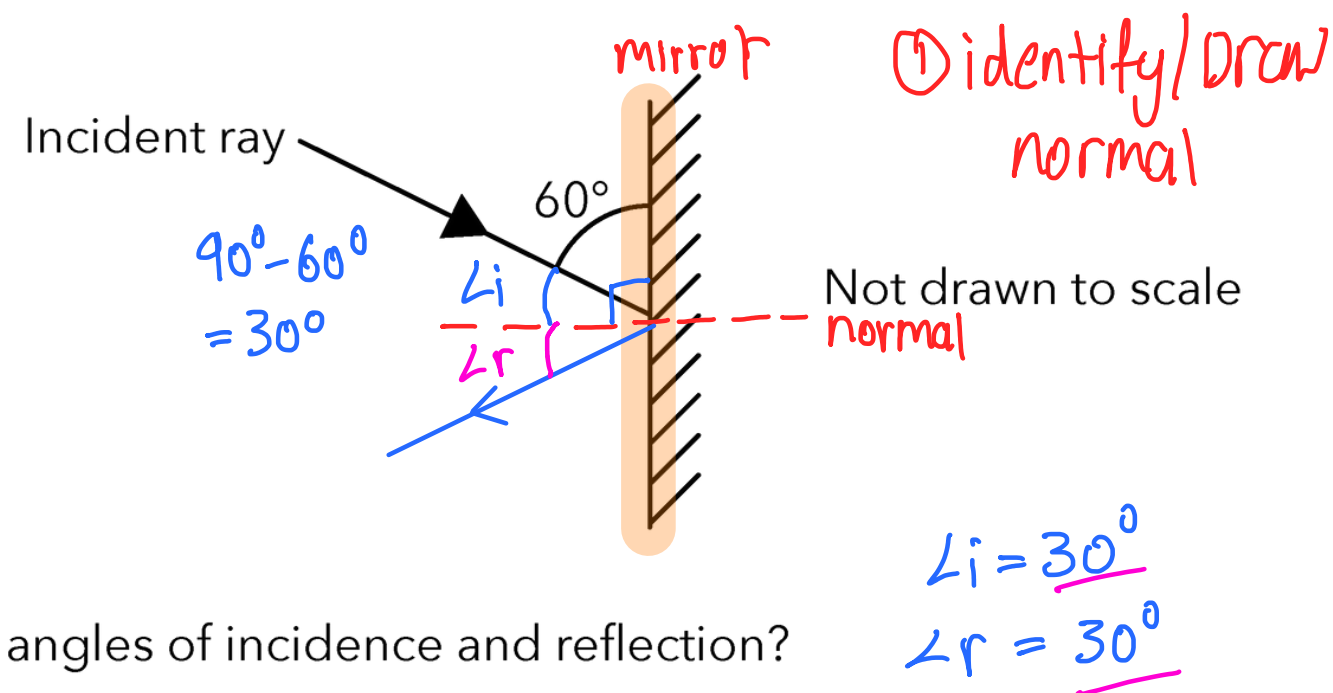
(in plane mirrors only)



QUESTION TYPE 1

Angle of Incidence & Angle of Reflection

18 A ray of light is being directed at a plane mirror.



What are the angles of incidence and reflection?

	$\angle i$ Angle of incidence	$\angle r$ Angle of reflection
A	30° ✓	30° ✓
B	30° ✓	60°
C	60°	30°
D	60°	60°

What is the law of reflection?

$\angle i = \angle r$



QUESTION 1

PIQUE YOUR BRAINS QUIZ!

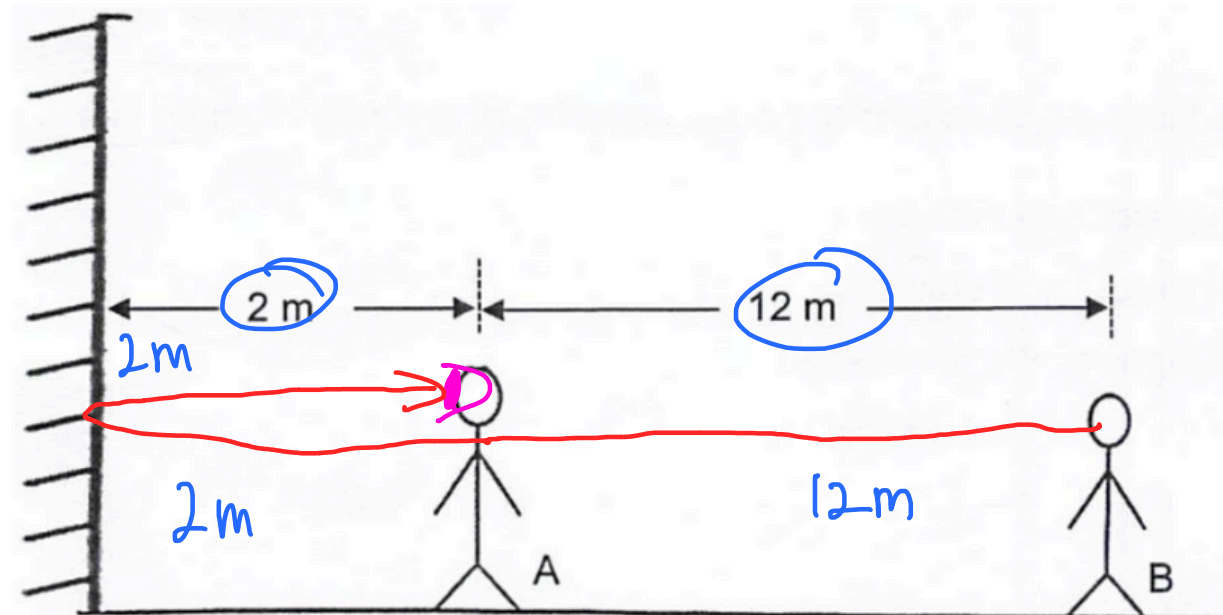


QUESTION TYPE 2

Determining distance between mirror, image and object

2024/CWSS/WA3/A/9

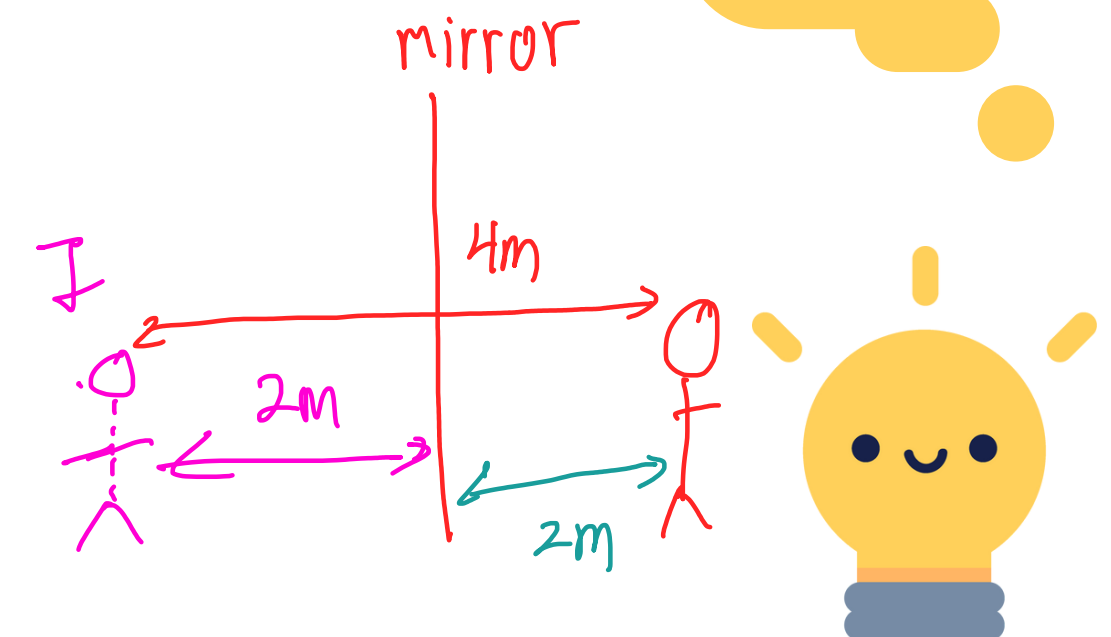
- 3 Two men are standing in front of a plane mirror as shown. When man A looks into the mirror, how far does man B seem to be away from him?



- A 12 m
- B 16 m**
- C 26 m
- D 28 m

$$12 + 2 + 2 = \underline{\underline{16m}}$$

What property of a plane mirror is being tested?



QUESTION 2

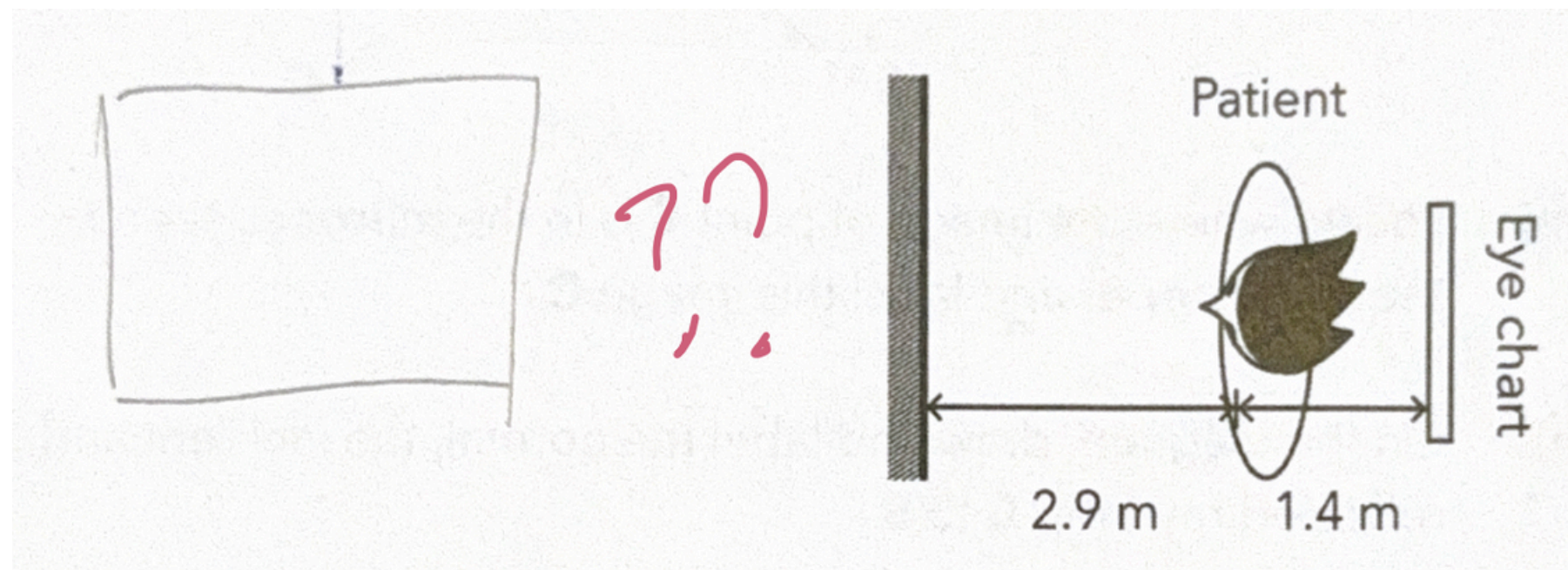
PIQUE YOUR BRAINS QUIZ!



QUESTION TYPE 3

Reflection Diagrams: Drawing the Image

Don't know
where to start?



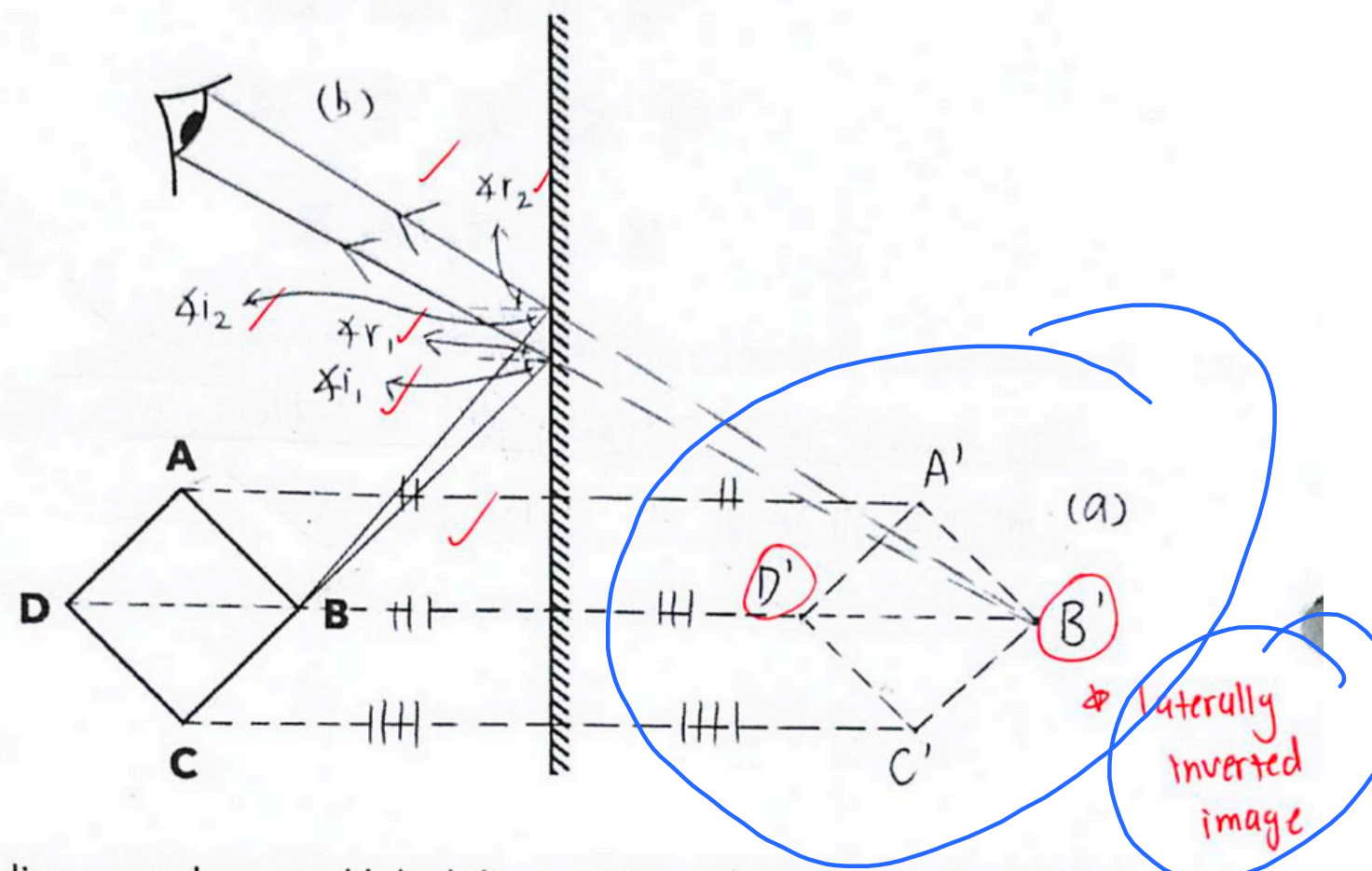
Don't worry, you
are not alone...



COMMON MISTAKES

Can you spot the mistake in these photos?

Q15 A table is placed in front of a plane mirror as shown in the diagram below.



- (a) On the diagram, draw and label the position of the image formed in the mirror.

[1]

0

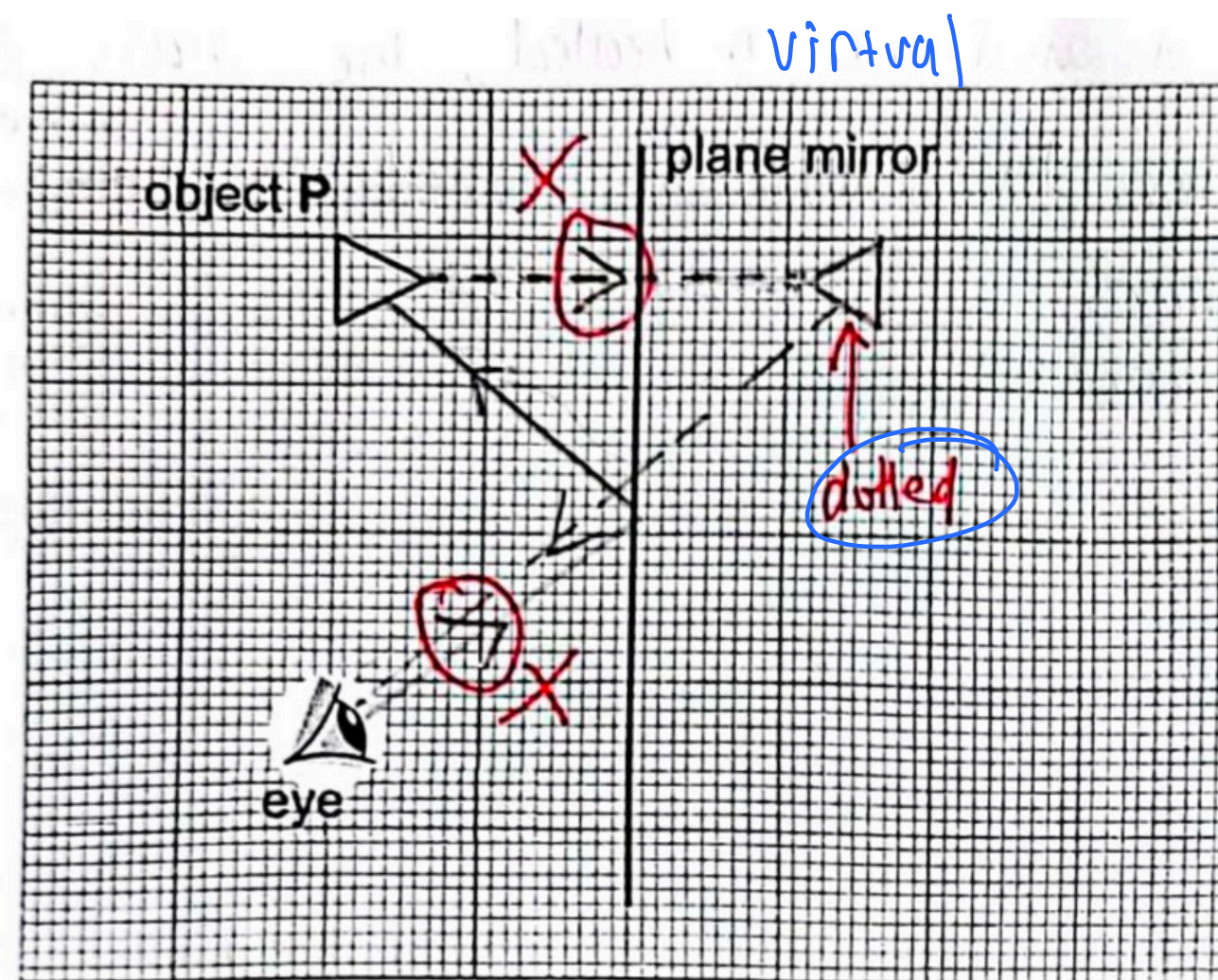


Can you spot the mistake in these photos?



COMMON MISTAKES

Can you spot the mistake in these photos?



Many students forget to apply the plane mirror rules!

I
R
D O
O
O



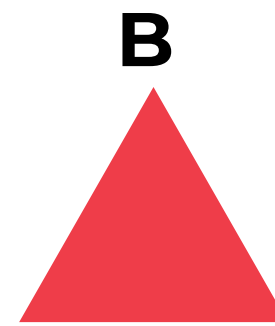
QUESTION TYPE 3

Reflection Diagrams: Drawing the Image

5 Plane Mirror Rules

- V**irtual → use dotted lines *Not real*
- U**pright *stick figure*
- L**aterally Inverted *stick figure with dashed line*
- S**ize (same)
- D**istance (same)

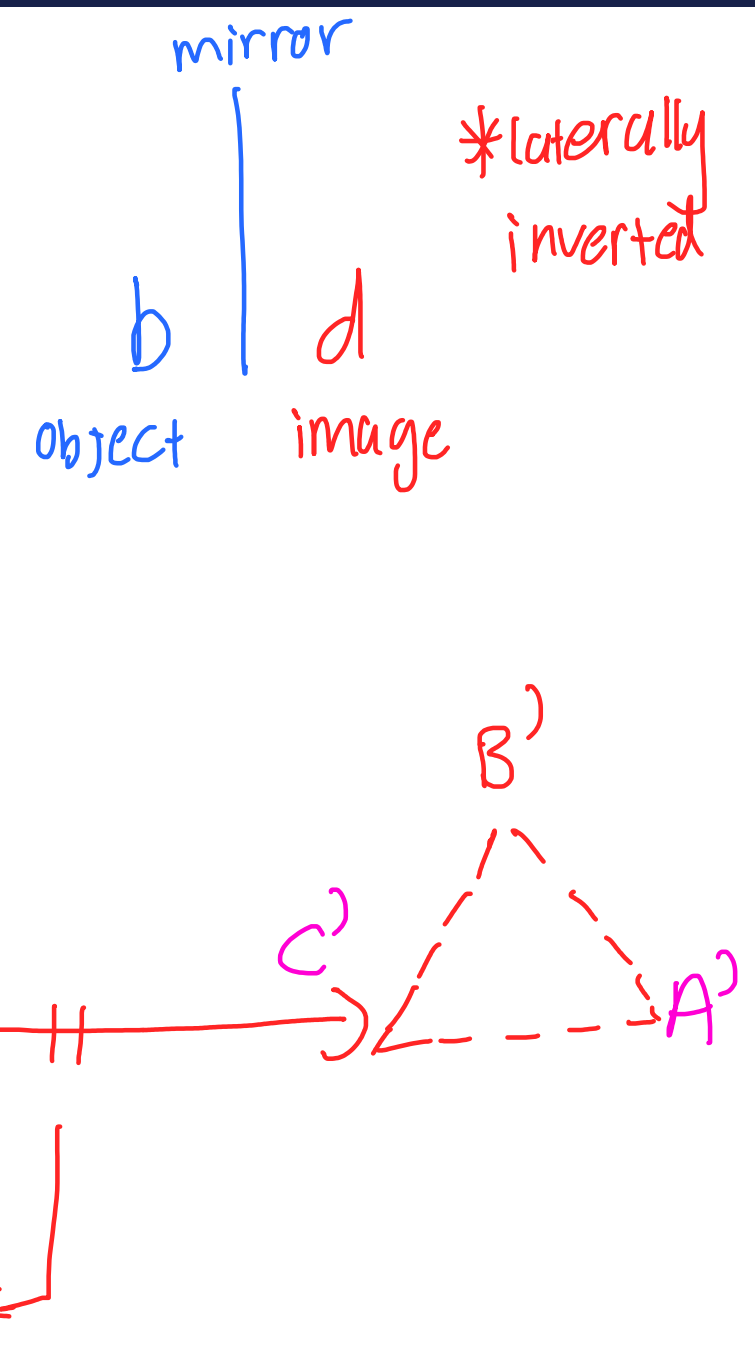
Volume
up
lets
start
Dancing



C

Mirror

same



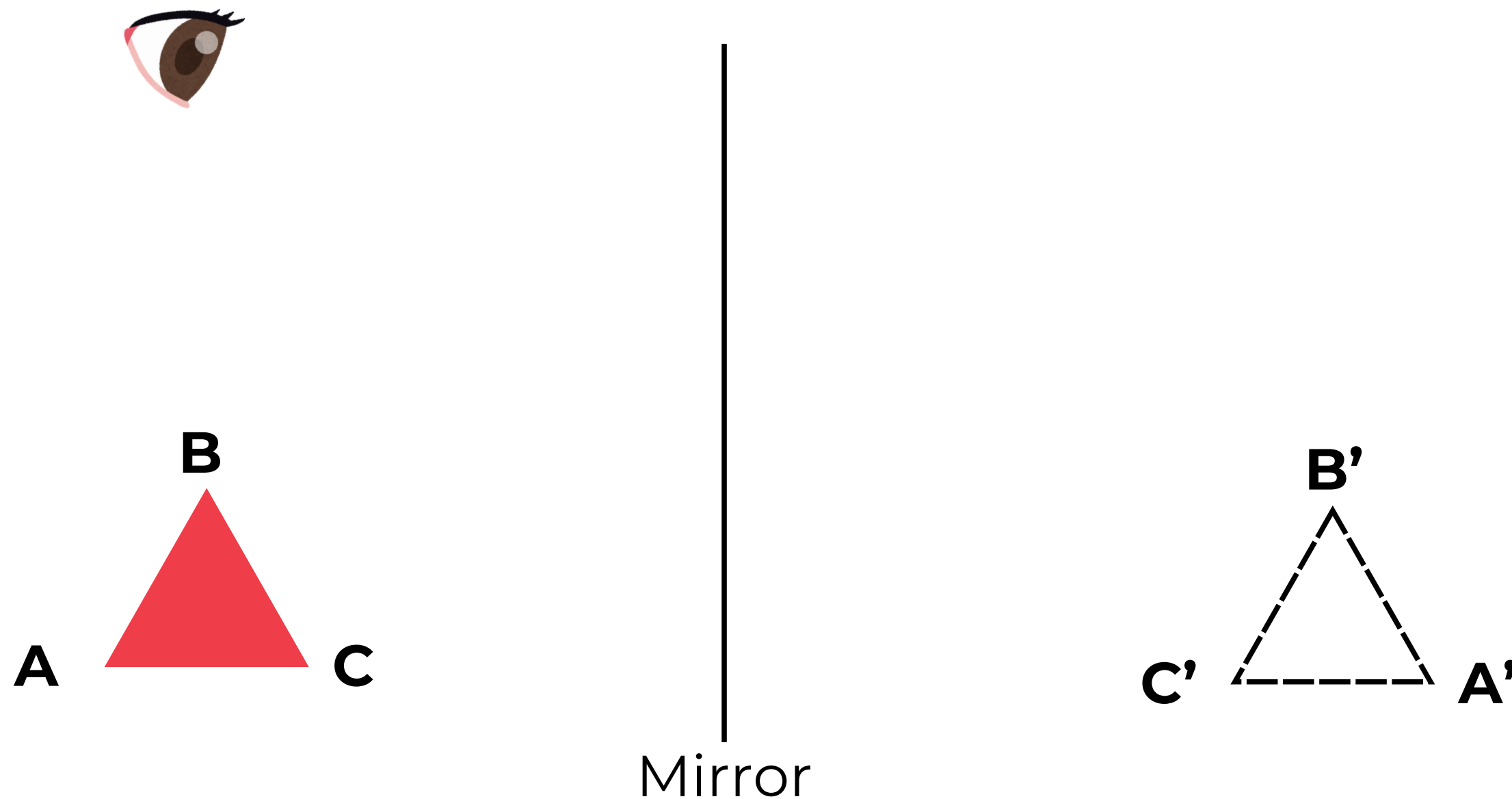
QUESTION 3

PIQUE YOUR BRAINS QUIZ!



QUESTION TYPE 4

Reflection Diagrams: Drawing the Incident Ray and Reflection Ray



COMMON MISTAKES

NOT reading the question carefully

- 10 (a) Fig. 10.1 shows an object placed in front of a plane mirror. Two observers A and B are positioned as shown.

5

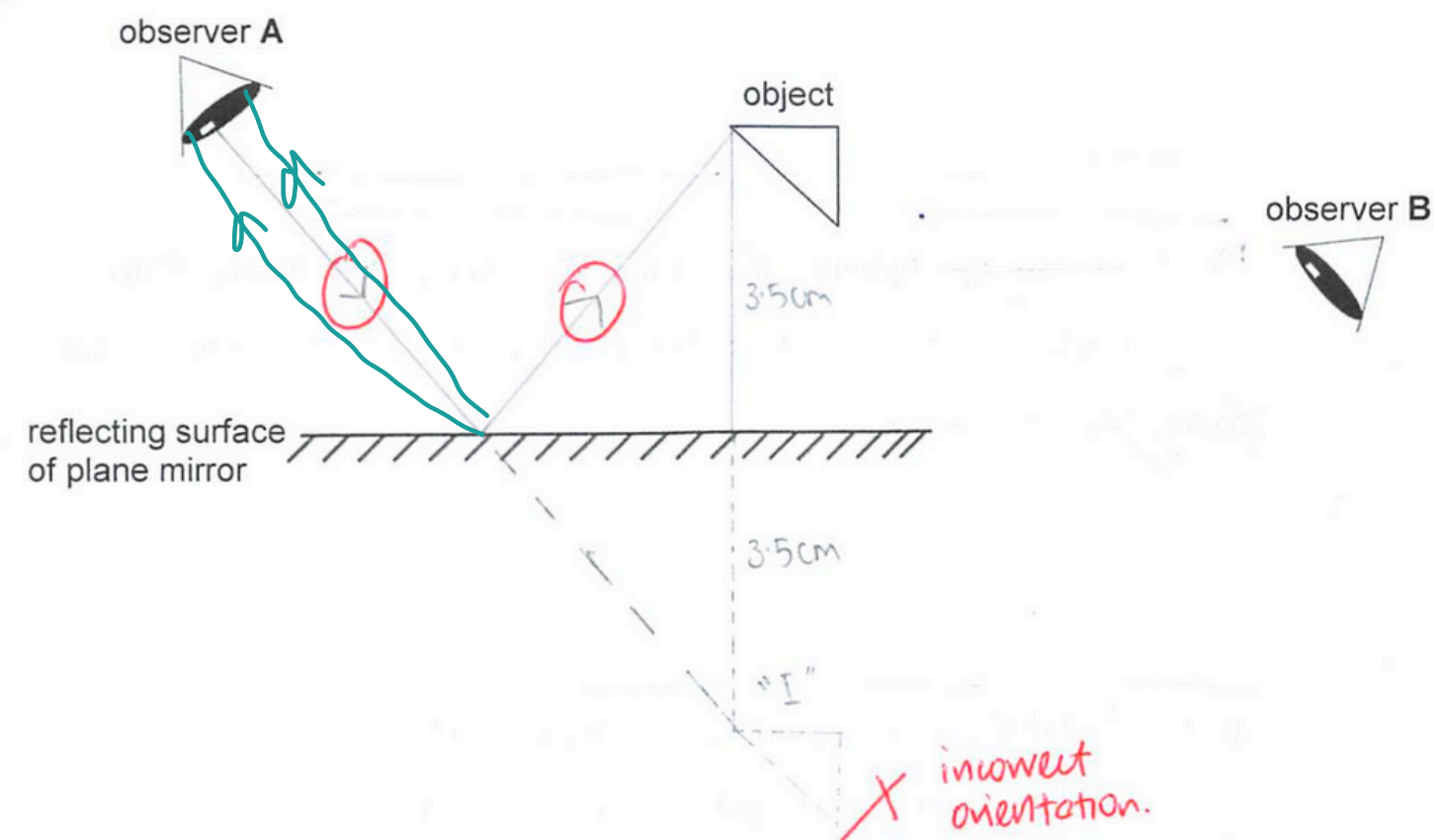


Fig. 10.1

- (i) On Fig. 10.1, draw the position of the image and label it "I".
- (ii) By drawing two rays from the object, show how observer A can see the image at "I".

[1] 0

[2] 1

↳ double ray diagram



QUESTION TYPE 4

Reflection Diagrams: Drawing the Incident Ray and Reflection Ray

(Double/2 Ray Diagram)

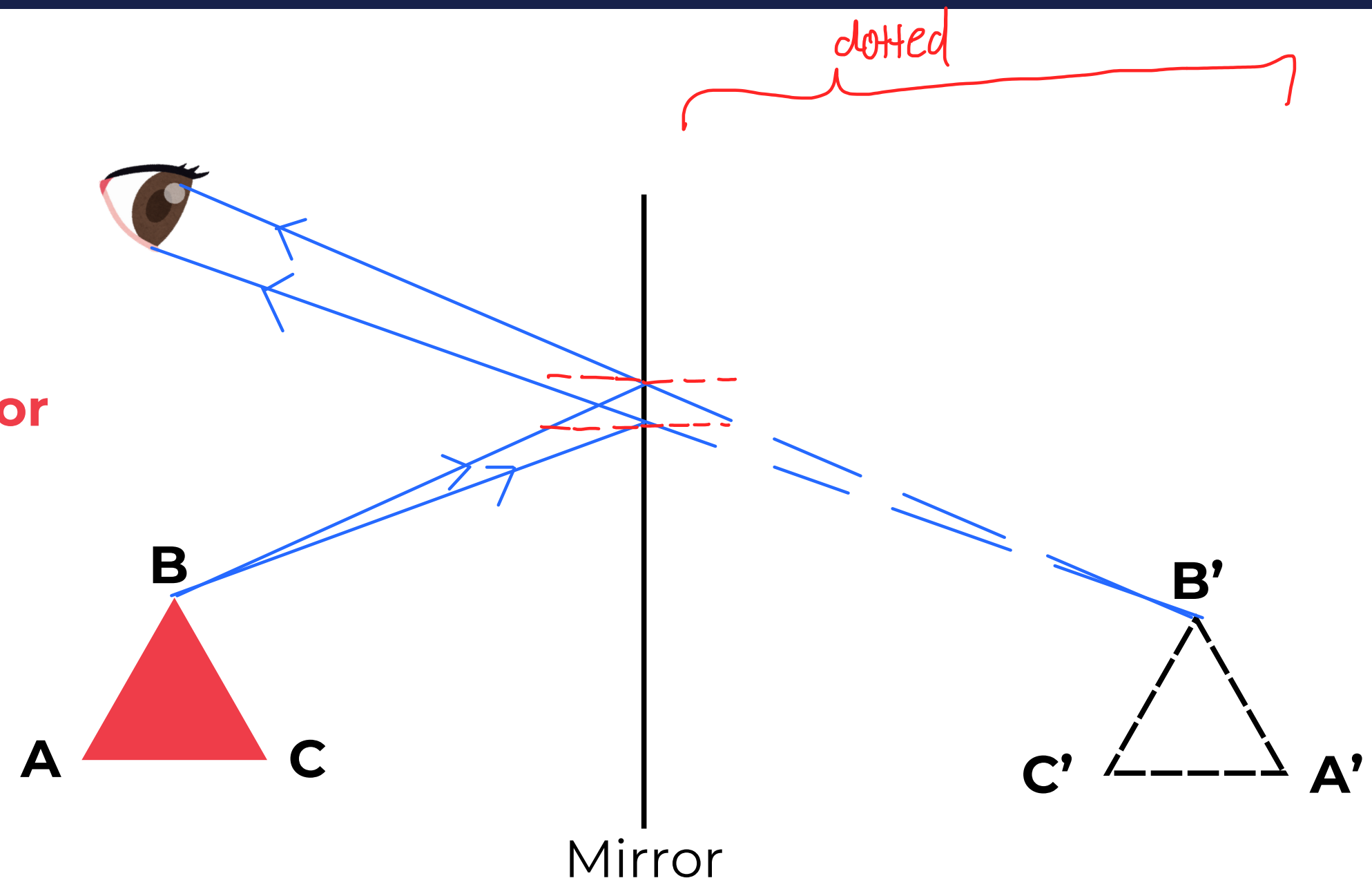
Step 1: Draw image ✓

Step 2: Draw lines from image ---> eye

Step 3: Draw lines from object ---> mirror

Spot check

- Dotted lines in mirror ✓
- Normal (dotted) ✓
- Arrows ✓

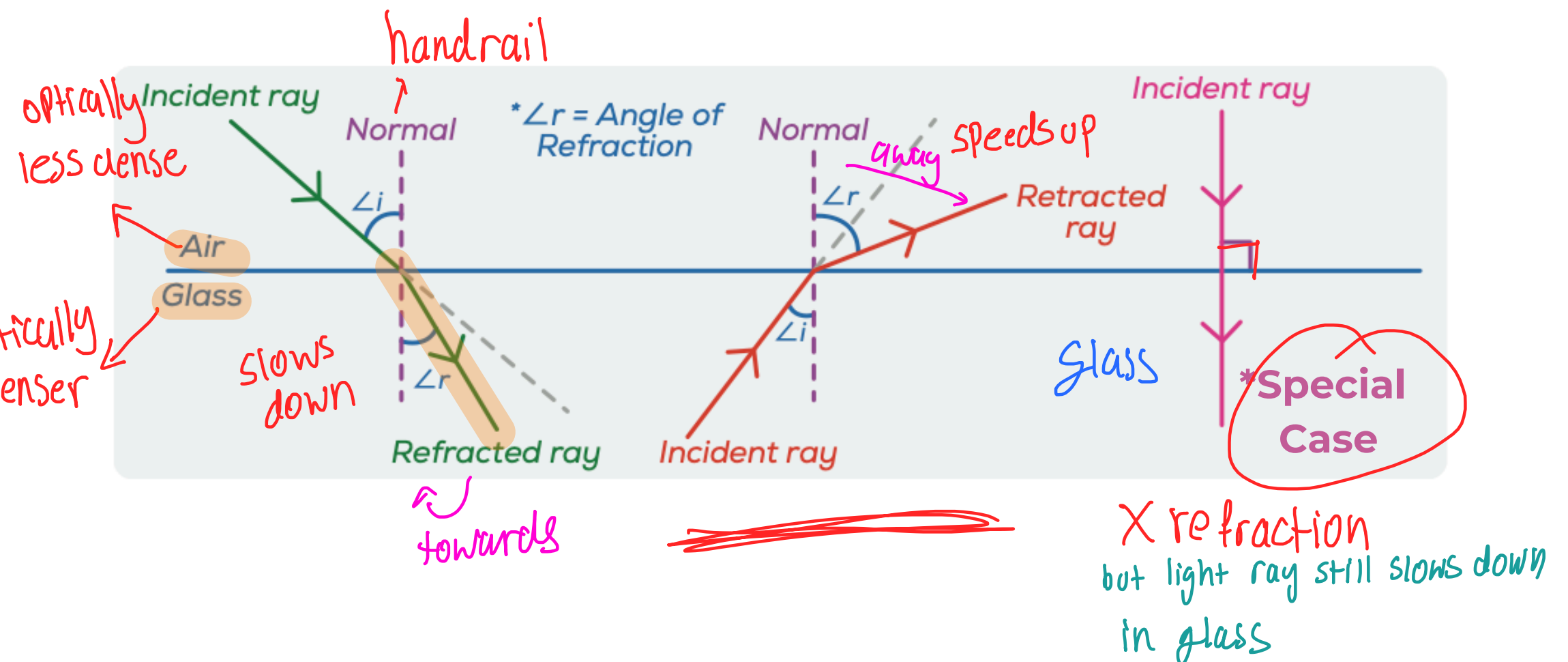


REFRACTION

Bending of light as it travels through mediums of different optical density



Refraction Diagrams



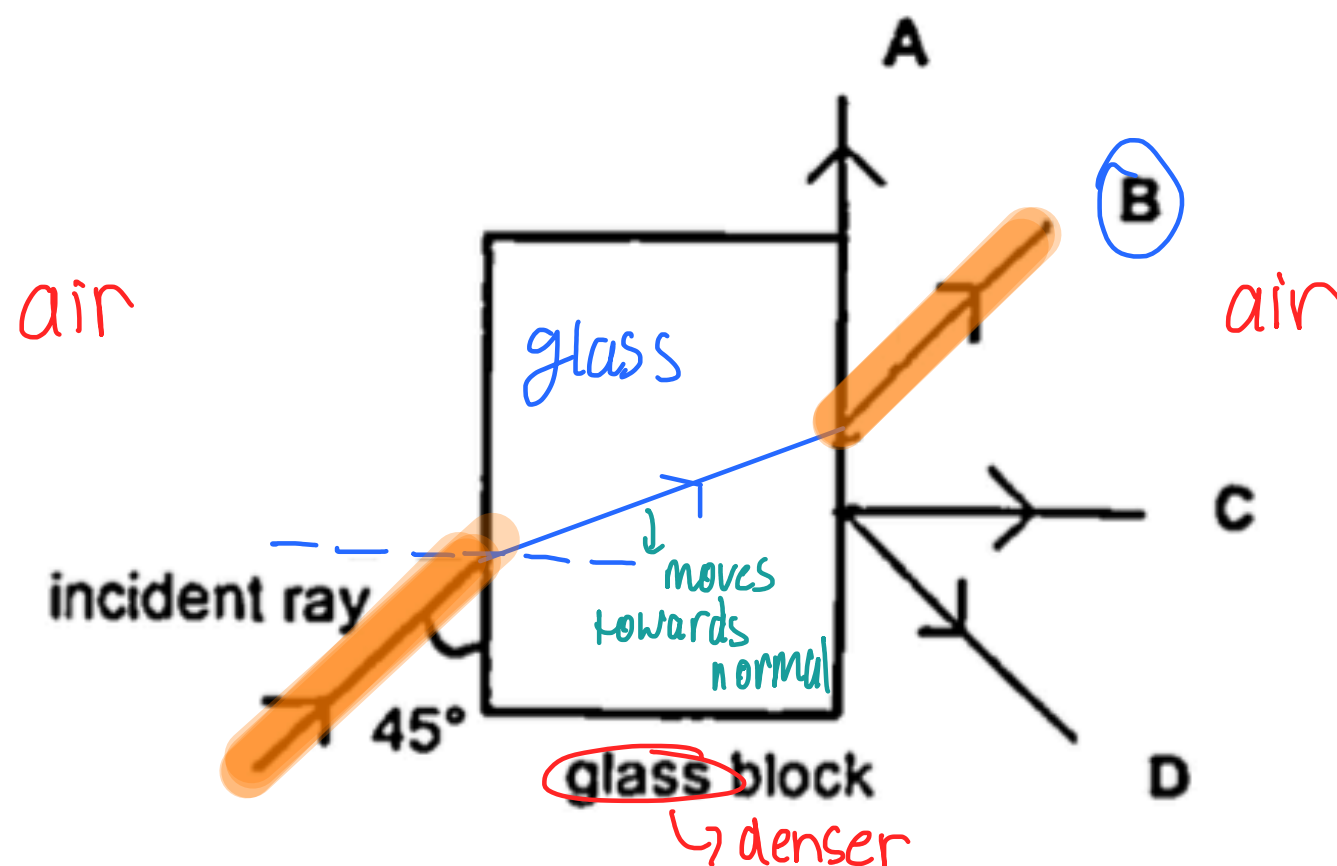
QUESTION TYPE 5

Refraction of Light

2024/FMSS/WA3/A/1

6 The diagram shows an incident ray entering a glass block.

* rays entering
glass block
& exiting
glass block
are parallel



x prism

Which light ray, **A**, **B**, **C**, or **D**, shows the path of a light ray emerging from the glass block?

QUESTION 5

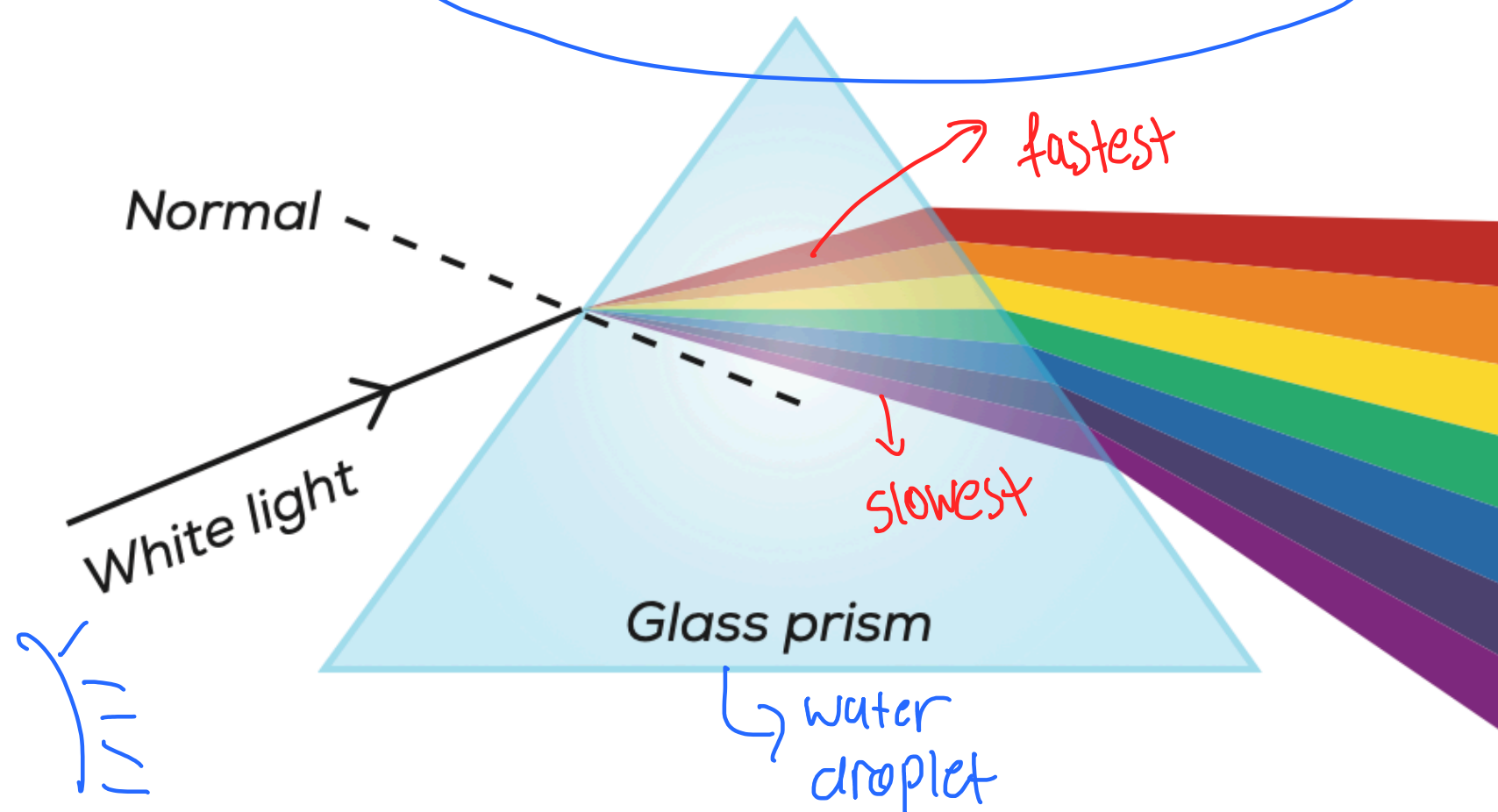
PIQUE YOUR BRAINS QUIZ!



REFRACTION

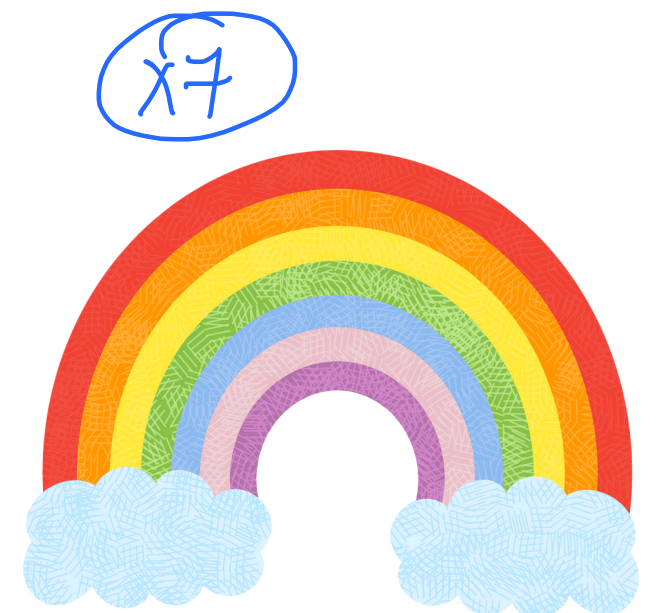
Bending of light as it travels through mediums of different optical density.

Dispersion of Light



ROY Gives Birth In Vietnam

Red — **R** - Bends the least
 Orange **O**
 Yellow **Y**
 Green **G** ives
 Blue **B** irth
 Indigo **I** n
 Violet — **V** - Bends the most
 Vietnam

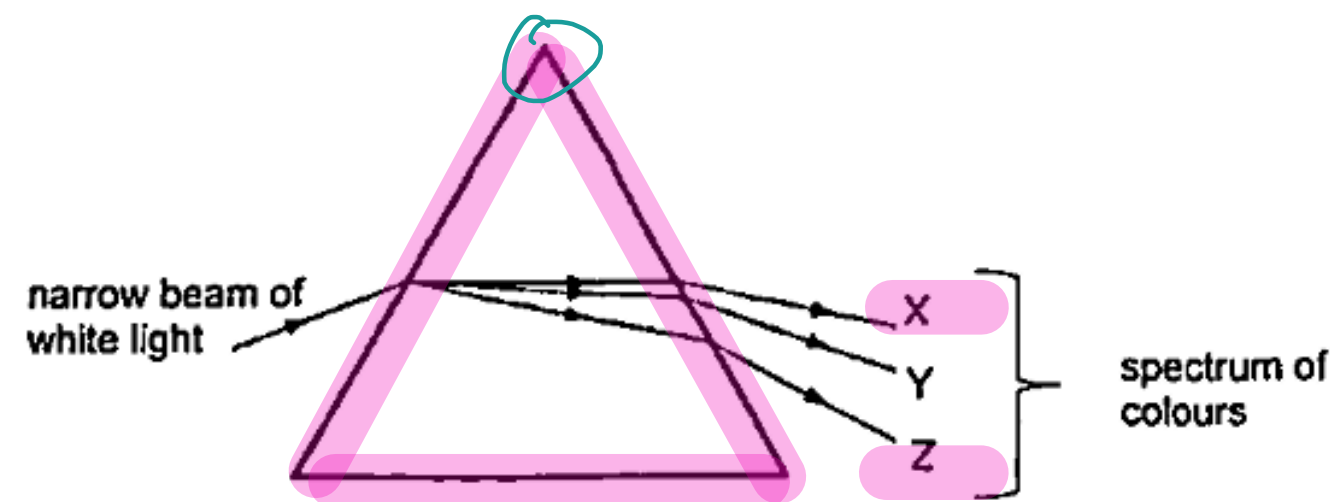


QUESTION TYPE 6

Dispersion of Light

2024/FMSS/WA3/A/4

- 11 The diagram shows a narrow beam of white light passing through a glass prism and a spectrum of colours is seen on the white screen.



Which three colours are seen at X, Y, and Z?

A
B
C
D

X
red
red
violet
yellow

Y
violet
yellow
yellow
red

Z
yellow
violet
red
violet

R
O
Y
G
B
I
V

* inverted
prism
= colour order
is flipped
↓
V
I
B
G
Y
O
R

QUESTION 6

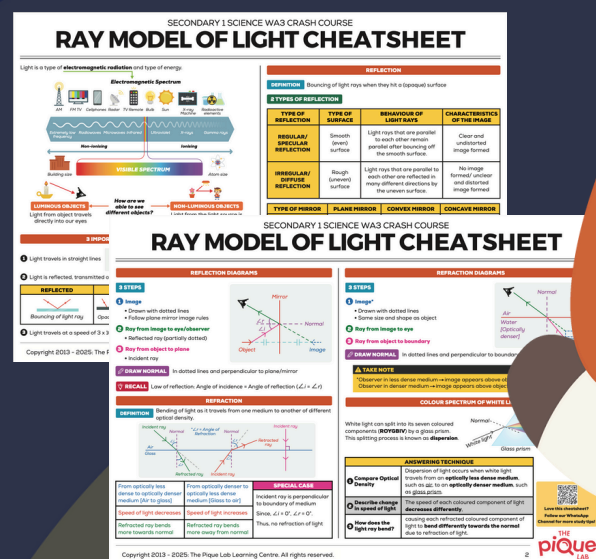
PIQUE YOUR BRAINS QUIZ!



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FOLLOW OUR WHATSAPP CHANNEL!

The cheatsheet will be uploaded **after**
the crash course!



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release **new crash courses & exam tips!**

Short Break Time!



@thepiquelab_

What do you call an accountant
for the Biology department?

A Buyologist!



WHAT WE'VE COVERED



Light concept recap



6 Light question types



**Common Light mistakes
students make**

Want to apply what
you learnt INSTANTLY?

FOLLOW OUR WHATSAPP CHANNEL!

Answers will be uploaded **after** the crash course!



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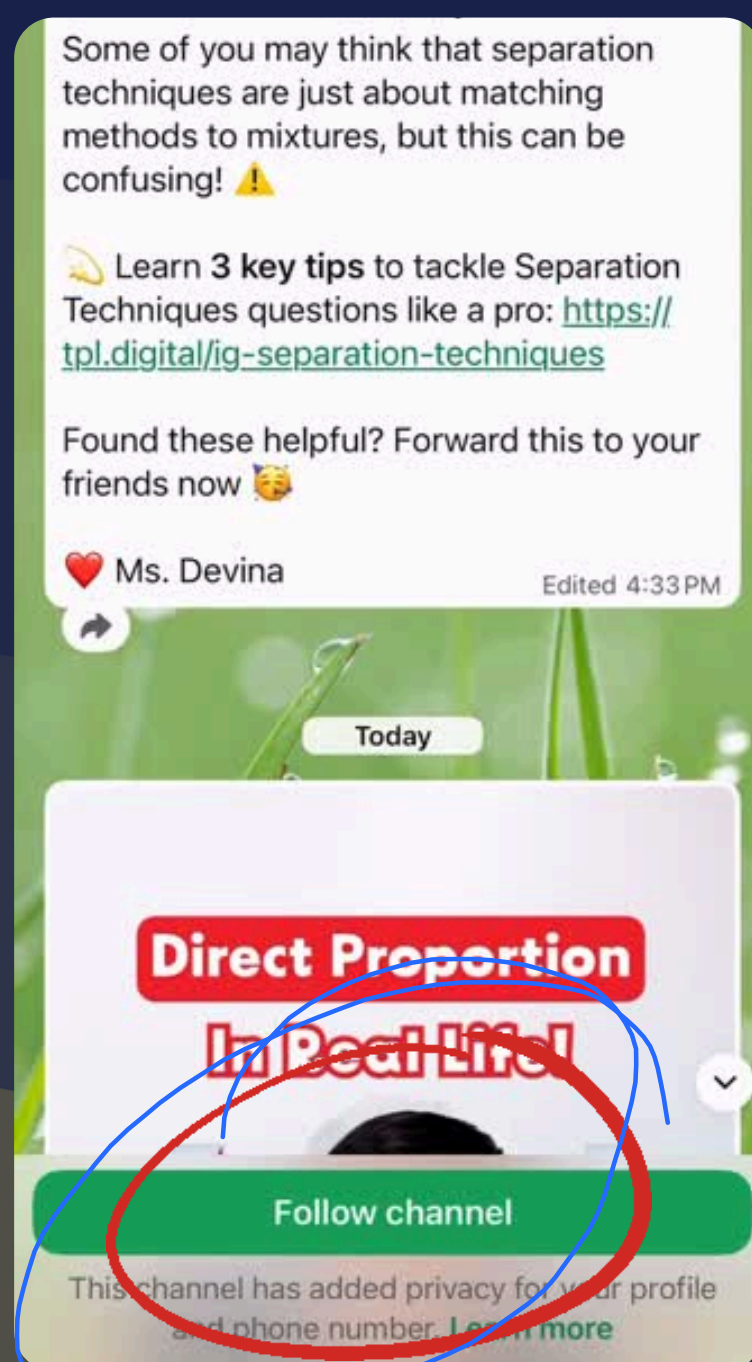


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EXCLUSIVE COMMUNITY FOR SECONDARY SCHOOL STUDENTS

Switch on the  to receive notifications!



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Be the first to know whenever we
release **new crash courses** & **exam tips**!

You may be thinking...

**“HOW CAN I
PREPARE FOR
MY EOY EXAMS
IN A SMARTER
WAY?”**



@thepiquelab_



Because they have
all the solutions!

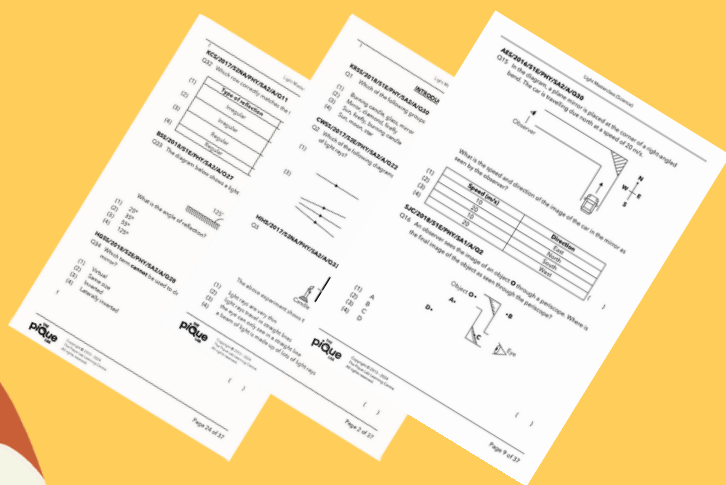


SECONDARY 1 SCIENCE WEEKLY GAP CLASSES



Get EOY-ready with targeted exam paper practice

**Practise past year
exam papers**

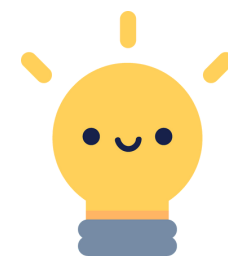


Build exam confidence for EOYs

- ✓ More exam question exposure
- ✓ Dissect questions faster
- ✓ Useful answering techniques to score full marks for OEQs



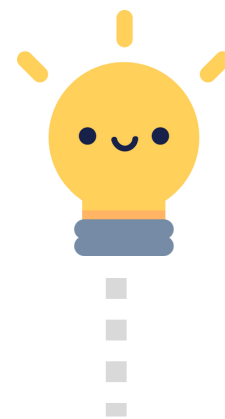
Strengthen your understanding of weaker topics



Discover your misconceptions

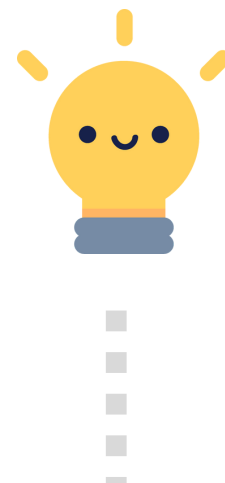
Avoid making the same mistakes again!

SECONDARY 1 SCIENCE WEEKLY CLASSES



Learning Arrangement

Onsite at GR.iD Campus OR
Online via Zoom



Duration

2 hours per lesson of teaching +
clarifying your questions +
practising exam style questions



Fees

\$60 registration fee
\$110 per lesson



SPREAD THE GOOD GAP VIBES



Lock in together & get rewarded!

1

**YOUR FRIEND
ATTENDS A TRIAL
LESSON (\$110)**

Scan the QR to reserve a slot!



2

**GET
REWARDED!**

You and your friend will receive a
\$50 eCapitaVoucher each after
they complete the trial lesson.

You will need to complete a **referral
claim form** for verification.



3

**KEEP
SPREADING
THE WORD**

Invite up to 5 friends and
earn up to \$250 of vouchers!



\$50 ECAPITA VOUCHERS

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Andes by Astons

Multiple malls



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Multiple malls

aperia

bedok mall

Bugis Junction

bugis

bpp
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Changi City Point

clarke quay
wine • dine • good times

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imm
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PARAGON

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singapura

Raffles City

SENGKANG
GRAND mall

SINGPOST
CENTRE

tm
TAMPINES MALL

THE CLEMENTI
mall

westgate





SECONDARY 1 SCIENCE WEEKLY CLASSES

Learning Arrangement	Day	Time
Hybrid	Tuesday	4.30PM to 6.30PM
	Wednesday	
	Thursday	
	Friday	
	Sunday	8.30AM to 10.30AM



FINAL QUESTION

PIQUE YOUR BRAINS QUIZ!





CLAIM YOUR STARBUCKS GIFT CARDS

**TOP 3 WINNERS OF
PIQUE YOUR BRAINS**

Screenshot your results & email us at
hello-students@thepiquelab.com ✨

CONGRATULATIONS!





ONE THING I WANT YOU
TO TAKE AWAY...

**NO STUDENT IS
“BAD AT SCIENCE”,
YOU JUST NEED THE
RIGHT GUIDE**





**SECONDARY 1 SCIENCE
WA3 CRASH COURSE**

LIGHT

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Ms. Devina Beins**

THANK YOU!

