PRAKTIS 8

Cahaya dan Optik
Light and Optics

Bahagian A

8.1 Penggunaan Cermin
The Use of Mirrors

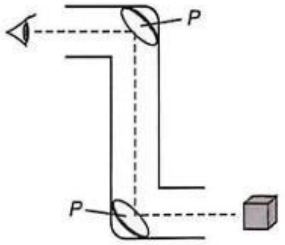
1 Tasha melihat imej dirinya di cermin. Apakah ciri imej tersebut?
Tasha is looking at her image in the mirror. What is the characteristic of the image?

A Imej sahih
Real image
B Imej satah
Planar image
C Imej cembung
Convex image
D Imej maya
Virtual image

2 Apakah ciri imej bagi objek yang terletak di hadapan sebuah cermin cembung?
What is the characteristic of the image of an object placed in front of a convex mirror?

A Saiz imej yang terbentuk adalah sama dengan saiz objek
The size of the image formed is the same as the object
B Imej yang terbentuk adalah lebih besar berbanding dengan objek
The image formed is larger than the object
C Imej yang terbentuk adalah lebih kecil berbanding dengan objek
The image formed is smaller than the object
D Tiada imej yang kelihatan
No image is visible

3 Rajah berikut menunjukkan sebuah model periskop yang menggunakan cermin *P* dan konsep pantulan cahaya.
The following diagram shows a periscope model that uses mirror P and the concept of reflection of light.

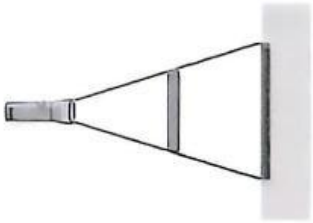


Apakah cermin *P*? *What is mirror P?*

A Cermin satah
Plane mirror
B Cermin cekung
Concave mirror
C Cermin cembung
Convex mirror
D Cermin kaleidoskop
Kaleidoscope mirror

8.2 Sifat Cahaya
Properties of Light

4 Rajah berikut menunjukkan bayang-bayang yang terhasil pada dinding apabila satu pembaris diletakkan di hadapan satu lampu suluh yang dinyalakan.
The following diagram shows the shadow produced on a wall when a ruler is placed in front of a flashlight that is turned on.



Apakah kesimpulan penyiasatan itu?
What is the conclusion of the investigation?

A Cahaya bergerak dengan sangat laju
Light travels very fast
B Cahaya dapat dipantulkan
Light can be reflected
C Cahaya merambat dalam garis lurus
Light travels in a straight line
D Cahaya dapat menembusi sebarang objek
Light can penetrate any object

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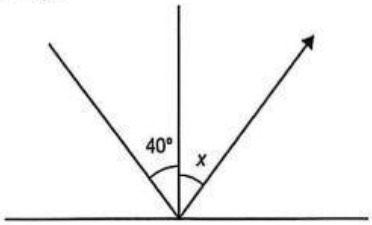
8.3 Pantulan Cahaya
Reflection of Light

5 Nyatakan ciri-ciri imej yang terbentuk pada cermin satah.
State the characteristics of the images formed on plane mirrors.

I Tegak *Upright*
II Songsang sisi
Laterally inverted
III Sahih *Real*
IV Saiz lebih besar daripada objek
Larger than the object

A I dan II
I and II
B I dan III
I and III
C II dan III
II and III
D III dan IV
III and IV

6 Rajah berikut menunjukkan rajah sinar bagi suatu pantulan.
The following diagram shows the ray diagram of a reflected ray.

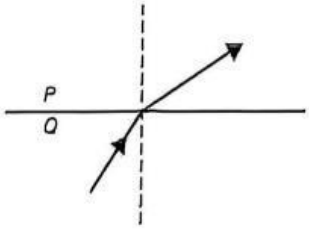


Berapakah nilai *x*?
What is the value of x?

A 30°
B 40°
C 50°
D 45°

8.4 Pembiasan Cahaya
Refraction of Light

7 Rajah berikut menunjukkan sinar cahaya yang terbias pada sudut tertentu apabila melalui dua medium berbeza.
The diagram shows the angle of refraction of a light ray when passing through two different mediums.



Antara berikut, yang manakah pernyataan betul berdasarkan situasi dalam rajah tersebut?
Which of the following statements is correct based on the situation in the diagram?

A Kedua-dua bahan *P* dan *Q* mempunyai jisim yang sama
Both substances P and Q have the same mass
B Medium *P* lebih tumpat berbanding dengan medium *Q*
Medium P is denser than medium Q
C Medium *P* dan *Q* mempunyai ketumpatan yang sama
Mediums P and Q have the same density
D Medium *Q* lebih tumpat berbanding dengan medium *P*
Medium Q is denser than medium P

8 Antara situasi berikut, yang manakah menunjukkan contoh pembiasan cahaya sedang berlaku?
Which of the following situations shows an example of refraction of light taking place?

A Kejadian pelangi selepas hujan terhenti
The occurrence of a rainbow after the rain stops
B Pensel kelihatan bengkok apabila dimasukkan ke dalam gelas berisi air
A pencil looks bent when placed in a glass filled with water
C Perkataan 'AMBULANS' ditulis secara songsang sisi pada ambulans.
The word 'AMBULANCE' is written inverted laterally on ambulances.
D Langit kelihatan kemerahan ketika senja
The sky looks reddish at dusk

8.5 Penyebaran Cahaya
Dispersion of Light

9 Cahaya putih terdiri daripada tujuh warna. Mengapakah cahaya ungu paling banyak dibiaskan?
White light consists of seven colours. Why is violet light the most refracted?

A Cahaya ungu mempunyai kelajuan yang paling rendah
Violet light has the lowest speed
B Cahaya ungu lebih tumpat berbanding cahaya lain
Violet light is denser than other lights
C Cahaya ungu bergerak dengan sangat laju
Violet light moves very fast
D Cahaya ungu lebih mudah dibiaskan daripada cahaya lain
Violet light is more easily refracted than other lights

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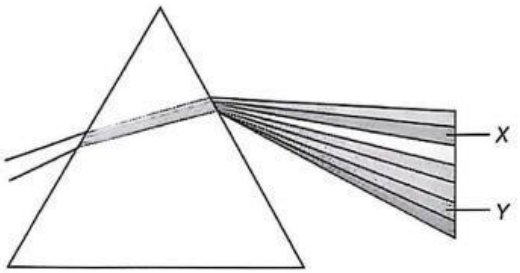
10 Rajah berikut menunjukkan penyebaran cahaya oleh prisma yang menghasilkan spektrum.
The following diagram shows the dispersion of light by a prism that produces a spectrum.



Nyatakan warna *X* dan *Y*.
Specify the colours of X and Y.

	X	Y
A	Merah *Red*	Ungu *Violet*
B	Kuning *Yellow*	Biru *Blue*
C	Jingga *Orange*	Indigo *Indigo*
D	Hijau *Green*	Ungu *Violet*

8.6 Penyerakan Cahaya *Scattering of Light*

11 Mengapakah angkasa lepas gelap tetapi Bumi berwarna biru walaupun disinari cahaya matahari yang sama?
Why is outer space dark but the Earth is blue even though it is illuminated by the same sunlight?

A Kewujudan lohong hitam yang menyerap cahaya di angkasa lepas
The existence of black holes that absorb light in space

B Ketiadaan atmosfera yang mengandungi zarah-zarah yang menyerakkan cahaya
The absence of an atmosphere containing particles that scatter light

C Cahaya matahari bergerak lebih laju di Bumi daripada di angkasa lepas
Sunlight travels faster on Earth than in space

D Terdapat banyak bendasing yang berada di angkasa lepas yang menghalang pergerakan cahaya
There are many foreign objects in space that block the movement of light

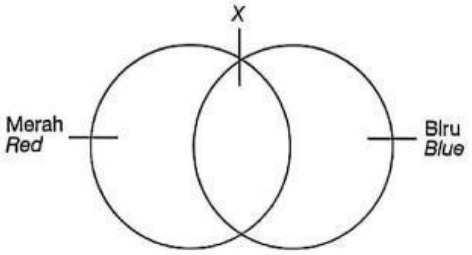
8.7 Penambahan dan Penolakan Cahaya *Addition and Subtraction of Light*

12 Antara berikut, yang manakah merupakan warna sekunder?
Which of the following are secondary colours?

I Magenta *Magenta*
II Sian *Cyan*
III Biru *Blue*
IV Putih *White*

A I dan II *I and II*
B I dan III *I and III*
C II dan III *II and III*
D III dan IV *III and IV*

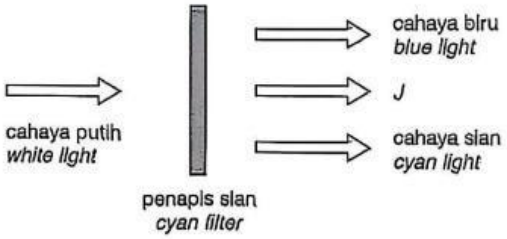
13 Rajah berikut menunjukkan penambahan dua cahaya berwarna.
The following diagram shows the addition of two coloured lights.



Apakah warna *X* yang terhasil?
What is the resultant colour X?

A Merah *Red*
B Magenta *Magenta*
C Biru *Blue*
D Hijau *Green*

14 Rajah berikut menunjukkan cahaya putih melalui penapis sian.
The following diagram shows white light passing through a cyan filter.



Apakah warna cahaya *J*?
What is the colour of light J?

A Kuning *Yellow*
B Merah *Red*
C Magenta *Magenta*
D Hijau *Green*

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