

Gold Level

Question Paper 7

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Gold
Booklet	Question Paper 7

Time Allowed: 59 minutes

Score: /49

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	65%	55%	45%	35%	25%	15%	<15%

1

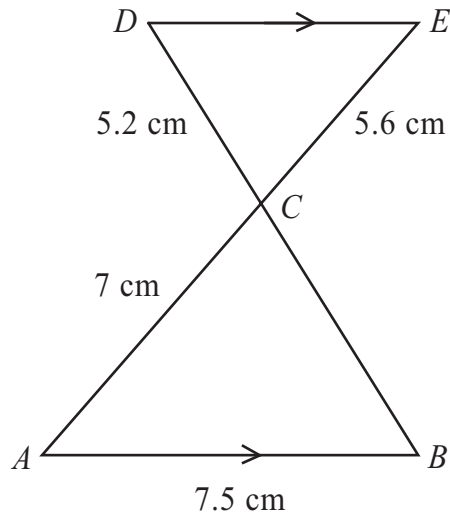


Diagram **NOT** accurately drawn

AB is parallel to DE .

The lines AE and BD intersect at C .

$AB = 7.5$ cm, $AC = 7$ cm, $CD = 5.2$ cm, $CE = 5.6$ cm.

(a) Calculate the length of BC .

..... cm
(2)

(b) Calculate the length of DE .

..... cm
(2)

(c) The area of triangle ABC is 21 cm²
Calculate the area of triangle EDC .

..... cm²
(3)

(Total for Question 1 is 7 marks)

2 $(3 + \sqrt{a})(4 + \sqrt{a}) = 17 + k\sqrt{a}$ where a and k are positive integers.

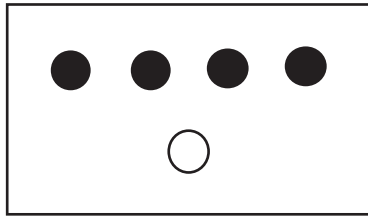
Find the value of a and the value of k .

$a = \dots\dots\dots$

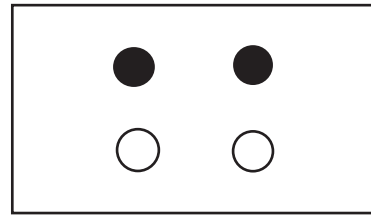
$k = \dots\dots\dots$

(Total for Question 2 is 3 marks)

3



Box X



Box Y

In Box X, there are 4 black discs and 1 white disc.
In Box Y, there are 2 black discs and 2 white discs.

Vikram takes at random a disc from Box X and puts it in Box Y.
He then takes at random a disc from Box Y.

- (a) Calculate the probability that the disc he takes from Box X and the disc he takes from Box Y will both be black discs.

.....
(2)

- (b) Calculate the probability that the disc he takes from Box Y will be a white disc.

.....
(3)

(Total for Question 3 is 5 marks)

- 4 When a photograph is taken, the exposure time, t , is directly proportional to the square of the size, f , of the opening in the camera lens.

$$t = 0.02 \text{ when } f = 8$$

- (a) Find a formula for t in terms of f .

.....
(3)

- (b) Calculate the value of f when $t = 0.0098$

$$f = \text{.....}$$

(2)

(Total for Question 4 is 5 marks)

5

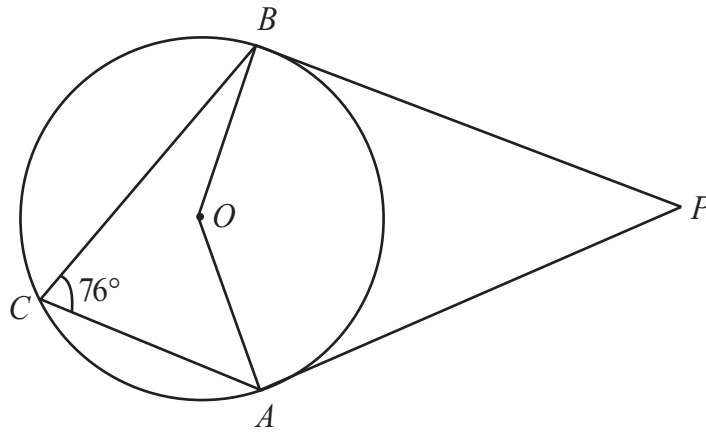


Diagram **NOT**
accurately drawn

A , B and C are points on a circle, centre O .

Angle $ACB = 76^\circ$

PA and PB are tangents to the circle.

Calculate the size of angle APB .

o

.....
(Total for Question 5 is 4 marks)

6 f is a function such that

$$f(x) = \frac{1}{x^2 + 1}$$

(a) Find $f\left(\frac{1}{2}\right)$

.....
(1)

g is a function such that

$$g(x) = \sqrt{x-1} \quad x \geq 1$$

(b) Find $fg(x)$

Give your answer as simply as possible.

$$fg(x) = \text{.....}$$

(2)

(Total for Question 6 is 3 marks)

7 On Monday, Nalim made a journey.

On Tuesday, she made the same journey.

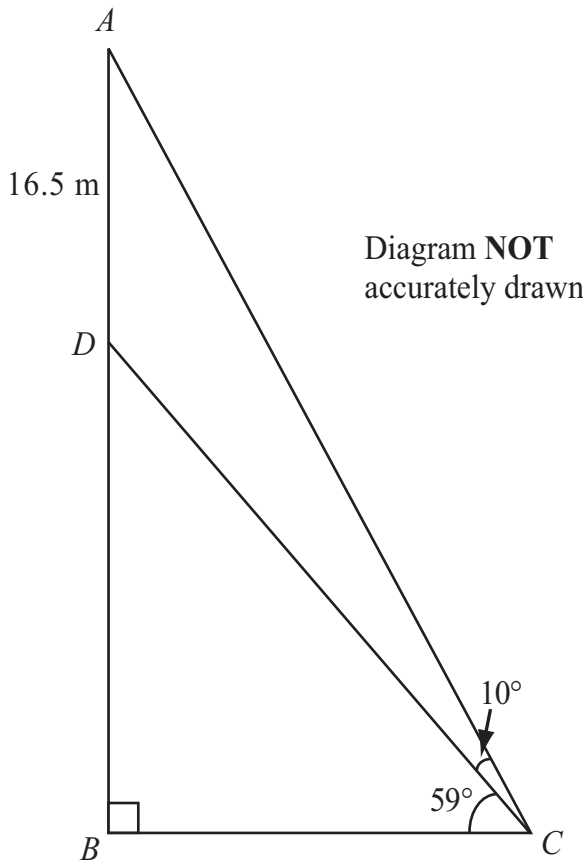
Her average speed on Tuesday was 25% greater than her average speed on Monday.

Calculate the percentage reduction in the time her journey took on Tuesday compared with Monday.

..... %

(Total for Question 7 is 3 marks)

8



The diagram shows a vertical flagpole in Chennai, India.
The point A is at the top of the flagpole.
The point B is at the foot of the flagpole.
There is a platform at the point D on the flagpole.
 B and C are points on horizontal ground.
 $AD = 16.5$ m
The angle of elevation of A from C is 69°
The angle of elevation of D from C is 59°

Calculate the height, AB , of the flagpole.
Give your answer correct to 3 significant figures.

..... m

(Total for Question 8 is 6 marks)

9 Solve the simultaneous equations

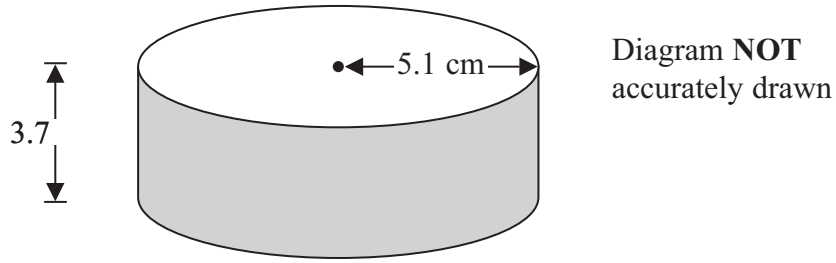
$$y = 3x + 2$$

$$x^2 + y^2 = 20$$

Show clear algebraic working.

(Total for Question 9 is 6 marks)

10



A solid cylinder has a radius of 5.1 cm and a height of 3.7 cm.

Work out the **total** surface area of the cylinder.
Give your answer correct to 3 significant figures.

..... cm²

(Total for Question 10 is 3 marks)

11 The number of runners in the London Marathon on 25th April, 2010 was 37 527.

Work out an estimate for the number of these runners whose birthday was on that day.

.....

(Total for Question 11 is 4 marks)