

Instructions for SECTION 1

- This part consists of 10 questions each worth 1 mark
- Calculators are NOT to be used in this section
- Time for this section is 15 minutes
- Fill in only ONE CIRCLE for each question

		Marks
1	Which of the following fractions lies between $\frac{1}{2}$ and $\frac{4}{5}$?	
	(A) $\frac{2}{5}$ (B) $\frac{11}{20}$ (C) $\frac{7}{8}$ (D) $\frac{9}{10}$	1
2	Simplify $5y + 5 + 4y - 3$.	
	(A) $9y + 2$ (B) $11y$ (C) $11y^2$ (D) $9y^2 + 2$	1
3	In a class of 30 students, 40% have dark hair. The number of students who do not have dark hair is	
	(A) $\frac{2}{5} \times 30$ (B) $40\% \times 30$ (C) $\frac{30}{60}$ (D) $\frac{3}{5} \times 30$	1
4	Solve $\sqrt{25p+9} = 4$.	
	(A) $-\frac{7}{25}$ (B) $\frac{1}{5}$ (C) $\frac{7}{25}$ (D) 1	1
5	$3a^0x^3y^4 \times (2xy^4)^3$ equals	
	(A) $24x^6y^{16}$ (B) $18ax^9y^{11}$ (C) $24ax^6y^{16}$ (D) $18x^9y^{11}$	1
6	$\sqrt[3]{a^2}$ written in index notation is	
	(A) a^6 (B) $a^{\frac{3}{2}}$ (C) $a^{\frac{2}{3}}$ (D) a^2	1
7	$5^3 \times 5^2$ equals	
	(A) 5^5 (B) 5^6 (C) 25^5 (D) 25^6	1
8	$4a \times 7b$ equals	
	(A) $11ab$ (B) $28ab$ (C) a^4b^7 (D) None of these	1
9	$\sqrt{5} + \sqrt{5}$ equals	
	(A) 5 (B) 10 (C) $\sqrt{10}$ (D) $2\sqrt{5}$	1
10	Which of the following remains unchanged in value if the zero is left out?	
	(A) 5.093 (B) 3.570 (C) 28.02 (D) 2380	1

End of Section 1

Total marks achieved for SECTION 1

10

CHAPTER 11

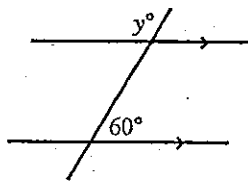
EXAM PAPER 1

SECTION 2 — PART A

Instructions for SECTION 2 (PART A)

- This part consists of 25 questions each worth 1 mark
- Calculators may be used
- Time for this section is 25 minutes
- Only provide your final answer in the space provided

Questions	Answers	Mark
11 Evaluate $\frac{(3.694)^2}{7.724 + 5.327}$ (give answer correct to two decimal places).	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
12 Simplify $\sqrt{12} + \sqrt{48}$ (leave answer in surd form).	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
13 Evaluate $64^{\frac{2}{3}}$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
14 Simplify $9^0 + 9^{-1}$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
15 Expand and simplify $(2\sqrt{3} - 3)^2$ (leave answer in surd form).	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
16 Evaluate -9^2 .	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
17 Simplify $8x^7 \times 5x^2$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
18 Write the basic numeral for 2.83×10^{-4} .	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
19 Find the median of the following scores: 7, 6, 6, 3, 4, 4, 5, 4.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
20 Find the mode of the following scores: 7, 6, 6, 3, 4, 4, 5, 4.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
21 Express $\left(2\frac{1}{4}\right)^3$ as a fraction in its simplest form.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
22 Find the value of the pronumeral in the given diagram.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
23 Factorise $12m^2 - 3m$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>



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Questions	Answers	Mark
24 Express $\frac{11}{20}$ as a percentage.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
25 Rationalise the denominator of $\frac{3\sqrt{7}}{2\sqrt{3}}$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
26 Express 71 500 000 in scientific notation.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
27 Solve $7x - 4 = 24$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
28 Find the value of x in the diagram.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
29 Find the mid-point of the line joining (3, 7) and (-1, 4).	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
30 A walker covers 2 metres each second. Express this as a speed in kilometres per hour.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
31 Factorise $6x^2 + 11x - 10$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
32 A car valued at \$12 000 depreciates at a rate of 16% p.a. What is its value after 2 years?	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
33 Find the perimeter of a semicircle of diameter 17 cm (take $\pi = 3.14$).	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
34 If two dice are thrown, what is the probability of getting a total of 10?	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>
35 Solve $x^2 = 16x$.	<hr/>	<div style="border: 1px solid black; width: 20px; height: 20px; text-align: center; margin: 0 auto;">1</div>

End of Part A — Go on to Part B

Total marks achieved for SECTION 2 — PART A

25

Instructions for SECTION 2 (PART B)

- This part consists of 3 questions each worth 5 marks
- Calculators may be used
- Time for this section is 20 minutes
- Show all necessary working
- Marks may be deducted for untidy or badly arranged work

Questions

Answers

Mark

36 a Rationalise the denominator of $\frac{6+\sqrt{2}}{5+\sqrt{2}}$.

1

b Solve $x^2 - 2x - 15 = 0$.

1

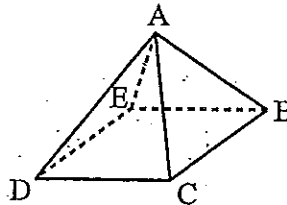
c Sketch $x - y = 6$, showing all features.

1

d A car originally worth \$7000 depreciates each year by 10%. What will be the value of the car after 5 years?

1

e Find the volume of the pyramid in the diagram if the perpendicular height is 12 cm, $CD = 8$ cm, $DE = 10$ cm and $BCDE$ is a rectangle.



1

37 Consider the parabola $y = 2x^2 - x - 6$.

a Find the equation of the axis of symmetry.

1

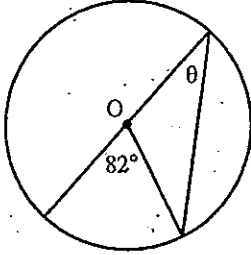
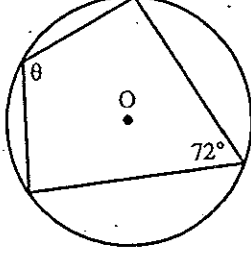
b Find the coordinates of the vertex.

1

c What are the coordinates of the intercept with the y -axis?

1

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Questions	Answers	Mark
d Find the coordinates of any intercepts with the x -axis.	_____	1
e Draw a neat sketch of the curve.	_____	1
38 A coin is tossed twice.		
a Draw a tree diagram to show the possible outcomes.	_____	1
b What is the probability of a head or tail in any order?	_____	1
c What is the probability of two heads?	_____	1
d O is the centre of each circle below. Find the size of angle θ in each diagram.		
i 	ii 	1
	_____	1

End of Exam		

Total marks achieved for SECTION 2 — PART B

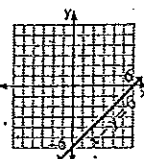
Answers

PAGE 96 1 B 2 A 3 D 4 C 5 A 6 C 7 A 8 B 9 D 10 B

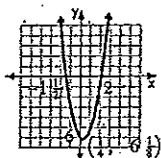
PAGE 97 11 1.05 12 $6\sqrt{3}$ 13 16 14 $1\frac{1}{9}$ 15 $21-12\sqrt{3}$ 16 81 17 $40x^9$ 18 0.000283 19 4.5 20 4 21 $1\frac{25}{64}$ 22 $y=120$
23 $3m(4m-1)$

PAGE 98 24 55% 25 $\frac{\sqrt{21}}{2}$ 26 7.15×10^7 27 $x=4$ 28 $x=30^\circ$ 29 $(1, 5\frac{1}{2})$ 30 7.2 km/h 31 $(2x+5)(3x-2)$ 32 \$846.72 33 43.69 c

34 $\frac{1}{12}$ 35 $x=0$ or $x=16$

PAGE 99 36 a $\frac{28-\sqrt{2}}{23}$ b $x=-3, x=5$ c  d \$4133.43 e 320 cm^3 37 a $x = \frac{1}{4}$ b $(\frac{1}{4}, -6\frac{1}{8})$ c $(0, 6)$

PAGE 100 37 d $(-1\frac{1}{2}, 0)$ and $(2, 0)$ e



38 a $\begin{matrix} & & H \\ & & | \\ H & & T \\ & & | \\ T & & H \\ & & | \\ & & T \end{matrix}$ (H, H) (H, T) (T, H) (T, T) b $\frac{1}{2}$ c $\frac{1}{4}$ d i. 41° ii 108°