

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

- | | | |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 1 | $3m^2 \times 2m^3$ equals
(A) $6m^6$ (B) $5m^6$ (C) $6m^5$ (D) $5m^5$ | Mar
<input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 2 | $6a^2c$ is equal to
(A) $6 \times 6 \times a \times a \times c \times c$ (B) $6 \times a \times a \times c$ (C) $6 \times 6 \times a \times a \times c$ (D) $6 \times a \times a \times c \times c$ | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 3 | Paul works 35 hours at \$28.80 per hour, 5 hours overtime at time-and-a-half and 3 hours overtime at double time. His pay is
(A) \$1185.60 (B) \$1259.70 (C) \$1383.20 (D) \$1396.80 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 4 | 0.00034578 written in standard notation is
(A) 3.4578×10 (B) 3.4578×10^4 (C) 3.4578×10^{-4} (D) 34.578×10^4 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 5 | $(2x^2y)^3$ equals
(A) $2x^6y$ (B) $6x^2y^3$ (C) $8x^6y^3$ (D) $2x^5y$ | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 6 | The distance between the points A(-2, 0) and B(8, 0) is
(A) 10 units (B) 6 units (C) $\sqrt{60}$ units (D) 2 units | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 7 | The median of the scores 4, 2, 7, 3, 8, 2, 9 is
(A) 3 (B) 2 (C) 5 (D) 4 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 8 | 0.0002 equals
(A) 2×10^{-4} (B) 2×10^4 (C) 2×10^{-3} (D) 2×10^3 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 9 | $8a^0$ equals
(A) $8a$ (B) 0 (C) 1 (D) 8 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |
| 10 | If $3.4 - x = 6$ then x equals
(A) -2.6 (B) 2.6 (C) -9.4 (D) 9.4 | <input style="width: 20px; height: 20px; border: 1px solid black;" type="text" value="1"/> |

End of Section 1

Total marks achieved for SECTION 1

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 Simplify $\frac{3p+2p-p}{2 \times 2p}$.	_____	1
12 Find $6\frac{1}{4}\%$ of 44 tonnes.	_____	1
13 Simplify 1.1 : 1.21.	_____	1
14 Simplify $\left(\frac{3}{4}\right)^2$. Write the answer as a fraction.	_____	1
15 Evaluate $\frac{7.8 \times 0.216^2}{\sqrt{3.5 + 2.97}}$ correct to one decimal place.	_____	1
16 Divide 24 in the ratio 5 : 3.	_____	1
17 Evaluate $12.56^2 - 7.15^2$ correct to three significant figures.	_____	1
18 Evaluate $7776^{\frac{1}{5}}$.	_____	1
19 Find x if $3^x = 243$.	_____	1
20 Write 21 600 in standard form.	_____	1
21 If $m = 2$, $n = 3$ and $p = 4$, evaluate $(6mn)^{\frac{3}{2}}$.	_____	1
22 Evaluate $a^2 - 7a + 5$ if $a = -1$.	_____	1
23 Simplify $\frac{2}{3a} - \frac{4}{2b}$.	_____	1

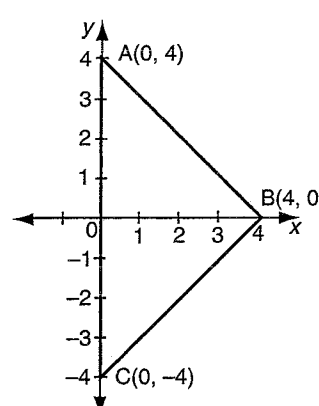
Questions	Answers	Mk
24 Simplify $\frac{15}{4x} \div 5x$.	_____	[
25 Rearrange the formula $A = \frac{PRT}{100}$ to make P the subject.	_____	[
26 What is the equation of the y -axis?	_____	[
27 Simplify $8x^0 \times (8x)^0$.	_____	[
28 Solve $\frac{5x}{4} = 2.5$.	_____	[
29 Simplify $3\sqrt{2} \times 2\sqrt{3}$.	_____	[
30 Simplify $2\sqrt{75}$.	_____	[
31 Expand and simplify $(x-y)^2 + (x+y)(x-y)$.	_____	[
32 Simplify $\frac{1}{x} + \frac{1}{y}$.	_____	[
33 Factorise $2p - 4q$.	_____	[
34 Rationalise the denominator of $\frac{3}{\sqrt{2}}$.	_____	[
35 Change $2\frac{1}{4}\%$ to a decimal.	_____	[
End of Part A — Go on to Part B		

Total marks achieved for SECTION 2 — PART A

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	Marks
<p>36 Factorise the following:</p> <p>a $am + bm - cm$</p>	_____	1
<p>b $9x^2 - 1$</p>	_____	1
<p>c $x^2 - 5x + 6$</p>	_____	1
<p>d $a^4 - b^4$</p>	_____	1
<p>e $1 + p + p^2 + p^3$</p>	_____	1
<p>37 Rationalise the denominator of the following:</p> <p>a $\frac{5}{2\sqrt{5}} =$</p>	_____	1
<p>b $\frac{\sqrt{2} + \sqrt{3}}{\sqrt{2} - \sqrt{3}} =$</p>	_____	1

	Questions	Answers	Mar
	Simplify the following:		
c	$\frac{3x+15}{x^2-25} \times \frac{x^2-49}{3x-21}$	_____	1
d	$\frac{2}{x+3} + \frac{1}{x-1}$	_____	1
e	$\frac{1}{x^2+x} - \frac{1}{x^2-1}$	_____	1
38 a	Find the mid-point of AC.	_____	1
b	Show that $\triangle ABC$ is isosceles.	_____	1
c	Show that $\triangle ABC$ is a right angled triangle.	_____	1
d	Find the mid-point M of AB .	_____	1
e	Find the gradient of OM .	_____	1
			
	End of Exam		
	Total marks achieved for SECTION 2 — PART B		

Answers

PAGE 101 1 C 2 B 3 D 4 C 5 C 6 A 7 D 8 A 9 D 10 A

PAGE 102 11 1 12 $2\frac{3}{4}$ tonnes 13 10:11 14 $\frac{9}{16}$ 15 0.1 16 15 and 9 17 107 18 6 19 $x=5$ 20 2.16×10^4 21 216 22 13 23 $\frac{2b-6a}{3ab}$

PAGE 103 24 $\frac{3}{4x^2}$ 25 $P = \frac{100A}{RT}$ 26 $x=0$ 27 8 28 $x=2$ 29 $6\sqrt{6}$ 30 $10\sqrt{3}$ 31 $2x^2 - 2xy$ 32 $\frac{x+y}{xy}$ 33 $2(p-2q)$ 34 $\frac{3\sqrt{2}}{2}$ 35 0.0225

PAGE 104 36 a $m(a+b-c)$ b $(3x+1)(3x-1)$ c $(x-2)(x-3)$ d $(a^2+b^2)(a+b)(a-b)$ e $(1+p)(1+p^2)$ 37 a $\frac{\sqrt{5}}{2}$ b $-5-2\sqrt{6}$

PAGE 105 37 c $\frac{x+7}{x-5}$ d $\frac{3x+1}{(x+3)(x-1)}$ e $\frac{-1}{x(x+1)(x-1)}$ 38 a (0, 0) b $AB=AC=4\sqrt{2}$ c $m_1m_2=-1$ d (2, 2) e 1