EXAM PAPER 4 .   SECTIO

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

M

1 $2^{\left(2^3\right)} \div \left(2^2\right)^3$ equals

(A) 1   (B) $\frac{1}{4}$ (C) $\frac{3}{4}$ (D) 4

2 $\dfrac{1}{2.5} - \dfrac{1}{7.5}$ equals

(A) 5   (B) $\frac{4}{15}$ (C) $\frac{1}{5}$ (D) $\frac{1}{10}$

3 $\dfrac{1}{2}\left[1 + (-1)^{13}\right]$ equals

(A) 6   (B) 1   (C) 0   (D) $\frac{1}{2}$

4 The value of $\dfrac{\frac{1}{2} + \frac{1}{4}}{1 - \left(\frac{1}{4}\right)\left(\frac{1}{2}\right)}$ is

(A) $\frac{8}{15}$ (B) $\frac{6}{7}$ (C) $\frac{15}{8}$ (D) $\frac{7}{6}$

5 What is the value of a if $ab + ac = 21$ and $b + c = 7$?

(A) –3   (B) –1   (C) 1   (D) 3

6 4 km + 58 m + 19 cm equals

(A) 4.05819 m   (B) 458.19 m   (C) 4058.19 m   (D) 45 819 m

7 $17 - 2 \times 3 + 8$ equals

(A) 19   (B) 53   (C) 360   (D) 3

8 $(a+b)^2 - (a-b)^2$ equals

(A) $-4ab$ (B) $4ab$ (C) 0   (D) $2a^2 + 2b^2$

9 \$450 is increased by $2\frac{1}{2}\%$ and the result is decreased by 15%. The final amount is

(A) \$393.75   (B) \$392.06   (C) \$478.13   (D) \$461.25

10 38 581 written to three significant figures is equal to

(A) 386   (B) 396   (C) 38 500   (D) 38 600

End of Section 1

Total marks achieved for SECTION 1
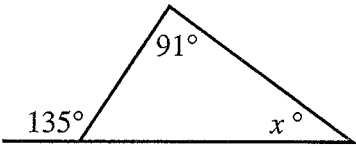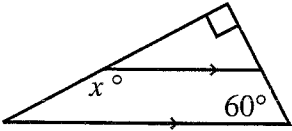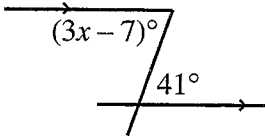
Instructions for SECTION 2 (PART A)
- This part consists of 25 questions each worth 1 mark
- Calculators may be used
- Time for this section is 25 minutes
- Only provide your final answer in the space provided

Questions	Answers	Marks
11 $\dfrac{3a}{4}+\dfrac{a}{4}$ equals:	_____	1
12 State the formula for the area of a trapezium.	_____	1
13 $1+\dfrac{3}{x}$ equals:	_____	1
14 Simplify $\dfrac{a+b}{b+a}$.	_____	1
15 Expand and simplify $(3x-2)(x+1)$.	_____	1
16 Convert $\dfrac{7}{8}$ to a percentage.	_____	1
17 Find the exact value of $49^{\frac{1}{4}} \times 49^{\frac{1}{4}}$.	_____	1
18 Simplify $\left(3a^3\right)^3$.	_____	1
19 Factorise $a^2b - ab^2$.	_____	1
20 Express $7^{-\frac{1}{2}}$ without an index.	_____	1
21 What is the median of the scores 12, 10, 1, 9, 10, 4, 5, 10, 2?	_____	1
22 Simplify $\sqrt{\left(a^8\right)^8}$.	_____	1
23 The gradient of the line $2x + 3y - 3 = 0$ is:	_____	1
24 The angle a sector makes at the centre of the circle is 45°. This is equivalent to what percentage?	_____	1

CHAPTER 11

Questions	Answers	M

25 Simplify $\left(2x^3\right)^2 \times 3x^0$.

26 Find x.

91°

135° $x°$

27 Increase $20\,650$ by $12\frac{1}{2}\%$.

28 Simplify $(a-5b)(5b+a)$.

29 Find the value of x, giving reasons for your answer.

$x°$ 60°

30 Jenny earns $15.50 an hour. Calculate her week's wages if she worked 40 hours at the normal rate and 6 hours overtime at time-and-a-half.

31 Reduce $\dfrac{3}{5x}+\dfrac{x}{x^2}$ to its simplest form.

32 Find the value of x.

$(3x-7)°$

41°

33 Simplify $\left(3x^3y^3\right)^3$.

34 Factorise $7a^2-7$ fully.

35 Simplify $\dfrac{2x}{3}-\dfrac{x-2}{5}$, giving your answer as a single fraction.

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 neccesary working
- Marks may be deducted for untidy or badly arranged work

Questions	Answers	Marks
36 Solve the following equations:		
a $\dfrac{1}{x+1} = \dfrac{3}{4+5x}$		1
b $\dfrac{x}{3} - \dfrac{2x+1}{2} = 28$		1
c $5(a+2) - (a-6) = 0$		1
d Solve the inequality $\dfrac{2-x}{5} < -1$ and graph the solution on a number line.		2
37 a Fertiliser was spread on a paddock of 20 hectares at the rate of 275 kilograms per hectare. How many tonnes of fertiliser were used for the paddock?		2

Questions	Answers	Ma

b In one week Julie worked 40 hours plus 12 hours overtime at time-and-a-half. Altogether she earned $835.20. What is her hourly rate?

c A computer is advertised for a cash price of $1860 or 20% deposit then $95.50 per month for 2 years. How much extra is paid by buying on terms?

38 a The perimeter of a rectangle is 120 cm. The length is one-and-a-half times the width. Find its width, length and area.

b The volume, V, of a cylinder of radius r and height h is given by $V = \pi r^2 h$ ($\pi = 3.142$).

  i Make r the subject of the formula.

  ii Find the value of r when $V = 1500$ and $h = 18.5$ (answer correct to two decimal places).
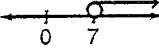
End of Exam

Total marks achieved for SECTION 2 — PART B

Answers

PAGE 111 1 D 2 B 3 C 4 B 5 D 6 C 7 A 8 B 9 B 10 D

PAGE 112 11 a 12 $A = \frac{1}{2}h(a+b)$ 13 $\frac{x+3}{x}$ 14 1 15 $3x^2 + x - 2$ 16 87.5% 17 7 18 $27a^9$ 19 $ab(a-b)$ 20 $\frac{1}{\sqrt{7}}$ 21 9 22 a^3

23 $-\frac{2}{3}$ 24 12.5%

PAGE 113 25 $12x^6$ 26 44° 27 $~~$23 321.25~~ $23 231·25$ 28 $a^2 - 25b^2$ 29 $x = 150°$ co-interior angles are supplementary 30 $759.50 31 $\frac{8}{5x}$

32 $x = 16$ 33 $27x^9y^9$ 34 $7(a+1)(a-1)$ 35 $\frac{7x+6}{15}$

PAGE 114 36 a $-\frac{1}{2}$ b $-42\frac{3}{4}$ c $a = -4$ d $x > 7$ 37 a 5.5 tonnes b $14.40

PAGE 115 37 c $804 38 a $w = 24$ cm, $l = 36$ cm, $A = 864$ cm² b i $r = \pm\sqrt{\dfrac{V}{\pi h}}$ ii $r = 5.08$ units