
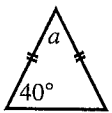


Instructions for SECTION 1

- 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** The number five more than $3x + 4$ is
 (A) $3x + 9$ (B) $8x + 9$ (C) $15x + 4$ (D) $15x + 20$
- 2** $25^{\frac{1}{2}}$ equals
 (A) $\frac{1}{5}$ (B) $\frac{1}{25}$ (C) 5 (D) 12.5
- 3** The temperature changed from 2° to -8° . The temperature has
 (A) increased by 6° (B) decreased by 6° (C) increased by 10° (D) decreased by 10°
- 4** A die is thrown twice. What is the probability of throwing a two both times?
 (A) $\frac{1}{6}$ (B) $\frac{1}{36}$ (C) $\frac{1}{4}$ (D) $\frac{3}{4}$
- 5** Write 248 000 in scientific notation.
 (A) 24.8×10^4 (B) 0.248×10^5 (C) 2.48×10^5 (D) 2.48×10^{-5}
- 6** Convert 7.5 metres to millimetres.
 (A) 750 mm (B) 7500 mm (C) 75 mm (D) 0.075 mm
- 7** Solve for x : $5x + 3 = 2(x + 12)$.
 (A) 3 (B) 5 (C) 9 (D) 7
- 8** If the remainder is 3 when the integer n is divided by 5, what is the remainder when $2n$ is divided by 5?
 (A) 1 (B) 2 (C) 3 (D) 4
- 9** O is the centre of the circle. The value of x is
 (A) 29 (B) 32 (C) 58 (D) 116
- 
- 10** In this isosceles triangle the value of a is
 (A) 40° (B) 100° (C) 70° (D) 140°
- 

Marks

1

1

1

1

1

1

1

1

1

1

End of Section 1

Total marks achieved for SECTION 1

10

CHAPTER 11

EXAM PAPER 4

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 $2^3 \times 3^2$.	_____	1
12 Express 8 540 000 in scientific notation.	_____	1
13 Simplify $\sqrt{162} + \sqrt{32}$.	_____	1
14 Evaluate $(15.632 - 2.954)^3$. Give your answer correct to two decimal places.	_____	1
15 Solve $x^2 = 25$.	_____	1
16 Find the exact value of $3^{-2} \times 8^{\frac{1}{3}}$.	_____	1
17 Evaluate $2\frac{1}{4} \times \left(6\frac{2}{3} - 3\frac{1}{2}\right)$. Leave your answer in fraction form.	_____	1
18 Solve $4 - 3x = 19$.	_____	1
19 Solve $(4x - 1)(x + 2) = 0$.	_____	1
20 Expand and simplify $7(2x - 7) - 3(x - 5)$.	_____	1
21 If I can walk at a rate of 5.4 km/h, what rate in m/sec would this be?	_____	1
22 Calculate the distance between the points $(-3, 2)$ and $(4, 6)$.	_____	1
23 Simplify $\frac{2x^3 - 2x}{1 - x}$.	_____	1
24 Simplify $(3a^2)^2 \times (2a^3)^3$.	_____	1
25 15% discount on a sum of money is \$8.00. Find the sum.	_____	1

Questions

Answers

Marks

26 Find the compound interest earned on \$2500 invested for 3 years at 15% compound interest per annum.

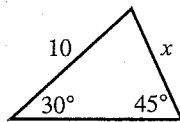
1

27 Find the mean and standard deviation of the given set of scores.

x	0	2	3	4	7	8
f	3	2	4	7	8	2

1

28 Find the exact value of x .



1

29 If $x = 2t - 1$ and $y = 2 - t$, find an equation relating x to y .

1

30 Convert 72 metres per second to kilometres per hour.

1

31 What is the surface area of a sphere of radius 28 cm?

1

32 Simplify fully: $\frac{3x^3 - 27x}{x - 3}$.

1

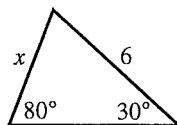
33 If $\frac{1}{4 - \sqrt{15}} = a + b\sqrt{15}$, where a and b are rational, find a and b .

1

34 Factorise fully: $a^2 - b^2 - (a - b)^2$.

1

35 Find x correct to two decimal places.



1

End of Part A — Go on to Part B

Total marks achieved for SECTION 2 — PART A

2

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 Find the equation of the circle.	_____	1
b Show that the points $(-2, -1)$, $(0, 3)$ and $(4, 11)$ are collinear.	_____	1
When two dice are thrown together, what is the probability of obtaining:		
c a total of five?	_____	1
d a double or a total of 10?	_____	1
e a total less than 8?	_____	1
37 a A solid concrete block is in the shape of a trapezoidal prism as shown in the diagram. What is the volume of concrete in the block?	_____	1
b What is the total surface area of the solid hemisphere, of radius 3 m, shown opposite? Give your answer correct to two decimal places.	_____	1

CHAPTER 11

EXAM PAPER 4

SECTION 2 — PART B (continued)

Questions	Answers	Mark
<p>An amount of \$9000 is invested at 8.5% p.a., compounded annually, for 3 years.</p>		
<p>c What is the final value of the investment to the nearest dollar?</p>	_____	1
<p>d How much interest has been earned?</p>	_____	1
<p>e What annual rate of simple interest would yield the same amount as found in part (d)?</p>	_____	1
<p>38 a Solve $x^2 - 12x - 28 = 0$ by factorising.</p>	_____	1
<p>b Solve $y^2 - 8y = -5$ by completing the square.</p>	_____	1
<p>c Solve $5x^2 - 7x + 1 = 0$ by the quadratic formula, leaving your answer in simplest surd form.</p>	_____	1
<p>d Sketch the graph $y = 2^x$, showing the y-intercept.</p>	_____	1
<p>e Solve algebraically: $x - y = 1$ $xy = 6$</p>	_____	1
<p>End of Exam</p>		

Total marks achieved for SECTION 2 — PART B

15

P115

Answers

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

PAGE 112 11 72 12 8.54×10^6 13 $13\sqrt{2}$ 14 2037.76 15 $x = \pm 5$ 16 $\frac{2}{9}$ 17 $7\frac{1}{8}$ 18 $x = -5$ 19 $x = \frac{1}{4}, x = -2$ 20 $11x - 34$

21 1.5 m/s 22 $\sqrt{65}$ units 23 $-2x(x+1)$ 24 $72a^{13}$ 25 \$53.33

PAGE 113 26 \$1302.19 27 $\bar{x} = 4.46, S.D. = 2.47$ 28 $x = 5\sqrt{2}$ 29 $x + 2y - 3 = 0$ 30 259.2 km/h 31 9852 cm² 32 $3x^2 + 9x$ 33 $a = 4, b = 1$ 34 $2b(a-b)$ 35 3.05

PAGE 114 36 a $x^2 + y^2 = 25$ b $m_1 = m_2 = 2$ c $\frac{1}{9}$ d $\frac{2}{9}$ e $\frac{7}{12}$ 37 a 168 000 m³ b 84.82 m²

PAGE 115 37 c \$11495.60 d \$2495.60 e 9.24% p.a. 38 a $x = -2, x = 14$ b $y = 4 \pm \sqrt{11}$ c $x = \frac{7 \pm \sqrt{29}}{10}$ d

e $x = -2, y = -3$ and $x = 3, y = 2$

