Section 2

75 marks
Time allowed for this section is
1 hour and 30 minutes

This section has TWO parts

Part A – Questions 26–80 55 marks
Part B – Questions 81–84 20 marks

Calculators may be used in this section

Do not commence Section 2 until you are instructed to do so

Part A

Questions 26–80 55 marks

Use the Section 2 – Part A Answer Sheet for Questions 26–80.

Instructions for answering multiple-choice questions

- For Questions 26–75, select the alternative A, B, C or D that best answers the question. Fill in the response oval completely.

  Sample: 2 + 4 = (A) 2 (B) 6 (C) 8 (D) 9

  A ○ B ● C ○ D ○

- If you think you have made a mistake, put a cross through the incorrect answer and fill in the new answer.

  A ● B ⊗ C ○ D ○

- If you change your mind and have crossed out what you consider to be the correct answer, then indicate the correct answer by writing the word *correct* and drawing an arrow as follows.

  correct

  A ⊗ B ⊗ C ○ D ○

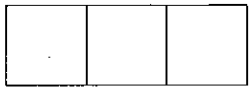
26 What is 26.3×0.76 correct to two decimal places?

(A) 19.89 (B) 19.98 (C) 19.99 (D) 20.00

27 Which of the following is greatest in value?

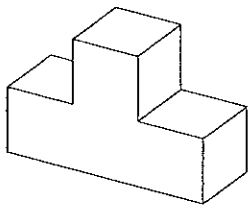
(A) $\frac{1}{2}$ (B) 20% (C) $\frac{3}{10}$ (D) 0.6

28 The top view of a solid is shown.

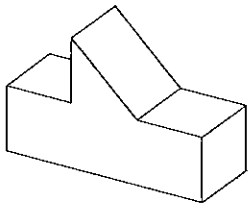


Which one of these solids does NOT have this top view?

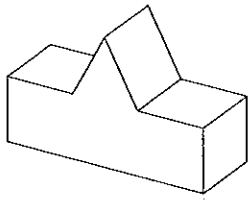
(A)



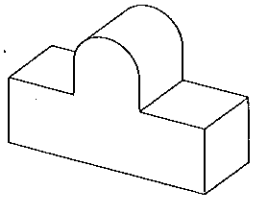
(B)



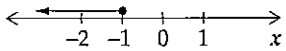
(C)



(D)

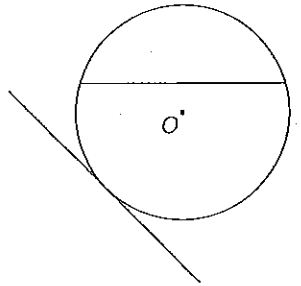


29 Which of the following inequations is represented by the graph shown?



(A) $x > -1$ (B) $x \geq -1$ (C) $x < -1$ (D) $x \leq -1$

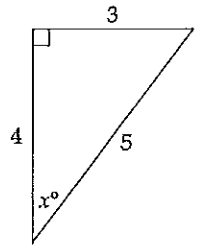
30 O is the centre of a circle.



Which of the following have been drawn on the diagram?

(A) Chord and sector
(B) Tangent and chord
(C) Radius and tangent
(D) Diameter and tangent

31



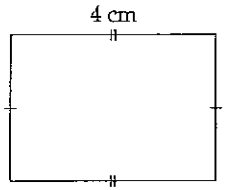
$\sin x^\circ =$

(A) $\frac{3}{5}$ (B) $\frac{4}{5}$ (C) $\frac{3}{4}$ (D) $\frac{5}{4}$

32 $4a + 2a + 8 - 3 =$

(A) $11a$ (B) $6a^2 + 5$ (C) $6a - 11$ (D) $6a + 5$

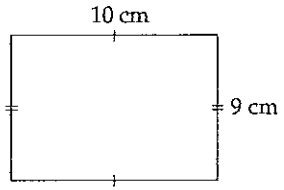
33



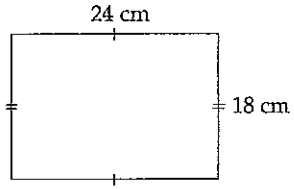
NOT TO SCALE

Which rectangle is similar to the rectangle shown above?

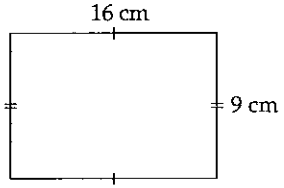
(A)



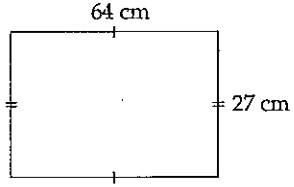
(B)



(C)



(D)



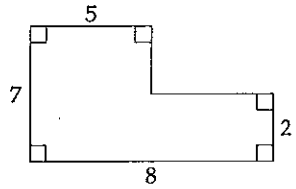
34 Which of the following is true of all rectangles?

(A) The diagonals are equal.
(B) The diagonals are perpendicular.
(C) The diagonals are axes of symmetry.
(D) The diagonals bisect the angles at the vertices.

35 Which of the following gives the highest annual income?

(A) $652 per week
(B) $1300 per fortnight
(C) $2850 per month
(D) $33 500 per year

36 What is the perimeter of the shape?



NOT TO SCALE

(A) 22 (B) 25 (C) 27 (D) 30

37 The area of a block of land is 3 hectares.

How many square metres is this?

(A) 3000 (B) 30 000 (C) 300 000 (D) 3 000 000

38 Evaluate ab^2 given $a = 2$ and $b = -3$.

(A) -36 (B) -18 (C) 18 (D) 36

39 $\frac{5m}{7} + \frac{2m}{7} =$

(A) m (B) $7m$ (C) $\frac{7m}{14}$ (D) $\frac{7m^2}{7}$

40 Which of the following is an expression for 3 more than the product of 6 and t?

(A) $6t + 3$ (B) $3t + 6$ (C) $t + 9$ (D) $18t + 3$

41 Lisa is 30 years old. In 10 years time she will be 20 years younger than William.

How old is William now?

(A) 40 (B) 45 (C) 50 (D) 60

42 John receives \$1000 for his birthday. He invests the money at 5.2% per annum simple interest.

How much interest will he earn after three years?

(A) \$52.00 (B) \$156.00 (C) \$164.25 (D) \$1164.25

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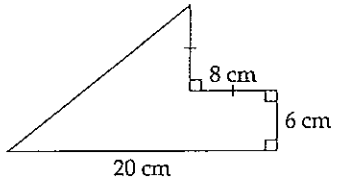
43 What is the area of this shape?



NOT TO SCALE

(A) 76 cm^2 (B) 132 cm^2 (C) 188 cm^2 (D) 216 cm^2

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44 What is the value of $(4.7 \times 10^{-3}) \times (9.1 \times 10^{7})$, written in scientific notation?

(A) 4.277×10^{5} (B) 42.77×10^{4} (C) 4.277×10^{2} (D) 427 700

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45 Factorise $-4m - 12$.

(A) $-4(m+3)$ (B) $-4(m-12)$ (C) $-4(m-3)$ (D) $-4m(m+3)$

---

46 Which of the following equations represents all the points that are four units to the left of the y-axis?

(A) $y = 4$ (B) $y = -4$ (C) $x = 4$ (D) $x = -4$

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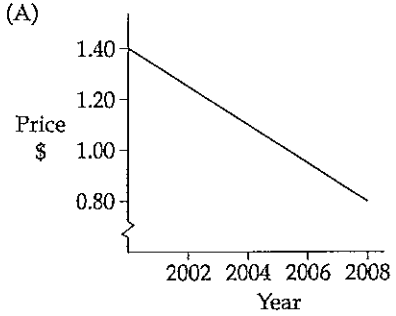
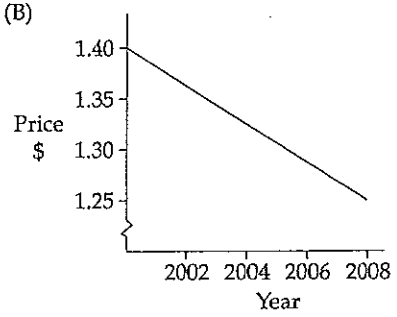
47 Which of the following graphs shows the greatest decrease in the price of petrol over a period of time?

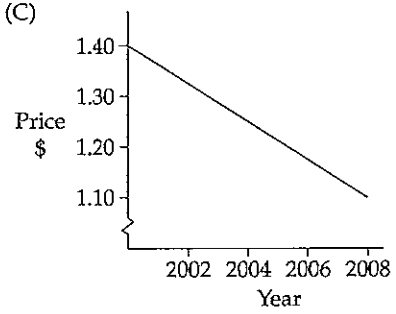
(A)



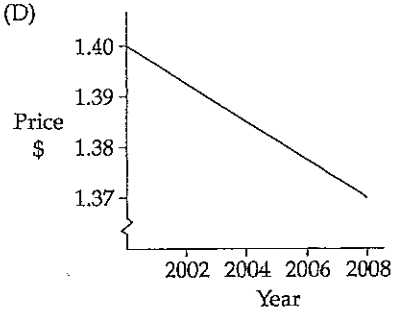
(B)



(C)



(D)



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48 Which of the following is an equation of a straight line?

(A) $y = 2x + 1$ (B) $y = x^2 + 1$ (C) $y = x^3 + 1$ (D) $y = 2^x + 1$

---

49 One quarter of a number is $\frac{1}{2}$.

What is the number?

(A) $\frac{1}{8}$ (B) $\frac{3}{4}$ (C) 2 (D) 8

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50 On a map, Sydney and Bathurst are 5 cm apart.

If the distance between the two cities is 200 km, what is the scale of the map?

(A) 1 : 40 (B) 1 : 40 000 (C) 1 : 400 000 (D) 1 : 4 000 000

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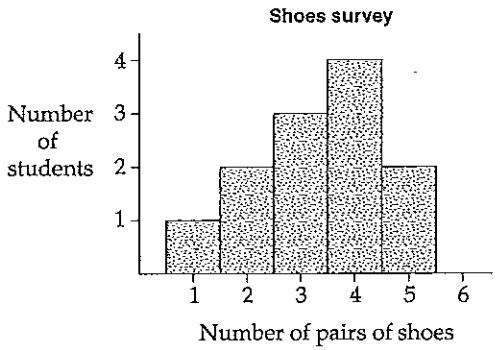
51 The graph shows the number of pairs of shoes owned by a group of students.



If a student from this group is chosen at random, what is the probability that the student owns three pairs of shoes?

(A) $\frac{3}{44}$ (B) $\frac{9}{44}$ (C) $\frac{1}{4}$ (D) $\frac{1}{3}$

---

52 Which of the following is equivalent to $2^4 \times 10^3 - 2^3$?

(A) $20^7 - 8$ (B) $20^{12} - 8$ (C) $2 \times 20^3 - 6$ (D) $16 \times 10^3 - 8$

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53 A taxi charge (c) in dollars was calculated by using the formula

$$c = 3.1 + 1.8k$$

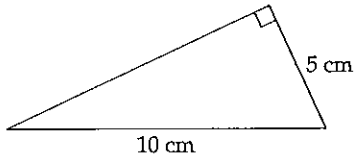
where k is the distance travelled in kilometres.

Kiran caught a taxi and paid \$36.40 for the journey.

How many kilometres did Kiran travel, correct to one decimal place?

(A) 17.1 (B) 18.5 (C) 34.7 (D) 68.6

54



NOT TO SCALE

What is the perimeter of this triangle, to the nearest centimetre?

(A) 20 (B) 24 (C) 25 (D) 26

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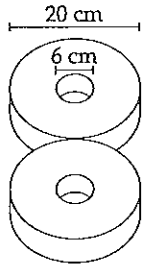
55 Anne designed a birthday cake in the shape of the number 8.

She used circular cake pans with diameters of 20 cm, and cut out smaller circles with diameters of 6 cm.



NOT TO SCALE

The top of the cake is to be covered with icing.

What is the area of the surface to be covered?

(A) 91π cm^2 (B) 182π cm^2 (C) 364π cm^2 (D) 728π cm^2

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56 Which of the following is a correct method to calculate the compound interest on \$3000 at 4% per annum over two years compounded annually?

(A) $\$3000 \times 1.04 \times 2 - \$3000$

(B) $\$3000 \times 0.04 \times 2 - \$3000$

(C) $\$3000 \times 1.04 \times 1.04 - \$3000$

(D) $\$3000 \times 0.04 \times 0.04 - \$3000$

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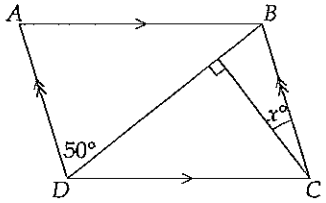
57 *ABCD* is a parallelogram.



NOT TO SCALE

What is the value of x?

(A) 30 (B) 40 (C) 50 (D) 60

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58 Solve the equation $-3(m-2)=18$.

(A) $m=-8$ (B) $m=-\frac{16}{3}$ (C) $m=-\frac{20}{3}$ (D) $m=-4$

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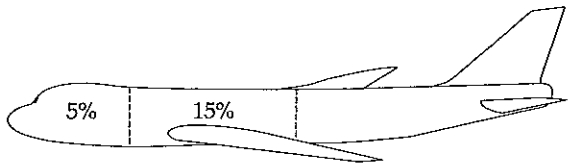
59 On a flight, the percentage of passengers who flew First Class and Business Class is shown in this diagram.



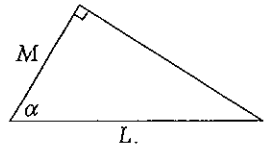
NOT TO SCALE

| First Class | Business Class | Economy Class |

If 240 people flew Economy Class, how many people flew Business Class?

(A) 12 (B) 30 (C) 36 (D) 45

60



Which equation could be used to find the length L?

(A) $L=\frac{M}{\cos\alpha}$

(B) $L=\frac{M}{\sin\alpha}$

(C) $L=M\cos\alpha$

(D) $L=M\sin\alpha$

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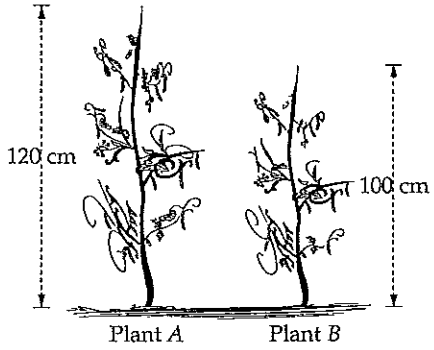
61 Plant *A* has a height of 120 cm. Plant *B* has a height of 100 cm. Plant *A* grows 3 cm per day. Plant *B* grows 5 cm per day.



NOT TO SCALE

How tall will they be when they are the same height?

(A) 135 cm (B) 150 cm (C) 165 cm (D) 180 cm

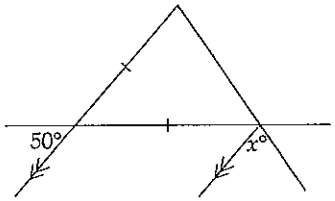
---

62 Pamela has a music collection of 600 songs. The songs are stored on her computer, MP3 player and CDs in the ratio of 2 : 3 : 5 respectively.

How many songs are stored on her MP3 player?

(A) 60 (B) 120 (C) 180 (D) 200

63

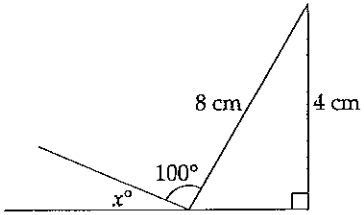


NOT TO SCALE

What is the value of x?

(A) 50 (B) 65 (C) 80 (D) 115

64



NOT TO SCALE

What is the value of x?

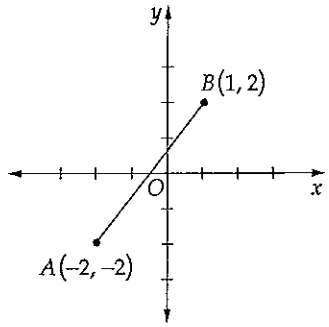
(A) 30 (B) 40 (C) 50 (D) 60

---

65 What is the surface area of a cube with side length 8 cm?

(A) 64 cm^2 (B) 96 cm^2 (C) 384 cm^2 (D) 512 cm^2

66



Which of the following is correct about the interval AB?

(A) length = 5, gradient = $\frac{4}{3}$

(B) length = 5, gradient = $\frac{3}{4}$

(C) length = $\sqrt{41}$, gradient = $\frac{5}{4}$

(D) length = $\sqrt{41}$, gradient = $\frac{4}{5}$

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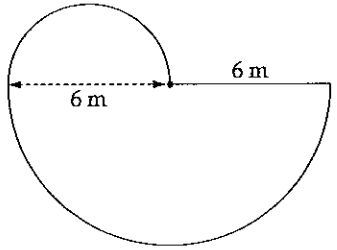
67 Emma's garden is in the shape of two semi-circles.



NOT TO SCALE

What is the perimeter of the garden, to the nearest metre?

(A) 28 (B) 34 (C) 71 (D) 119

---

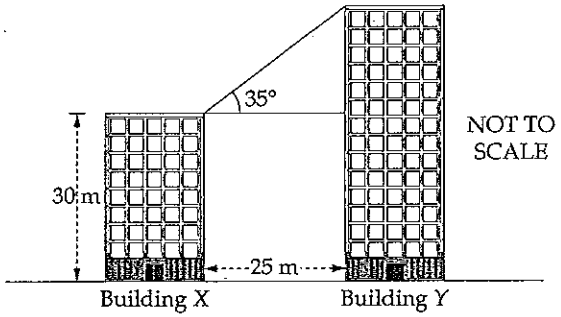
68 Nathan left on a journey at 11 am. He travelled 234 km and arrived at his destination at 1:15 pm.

What was his average speed for the journey, to the nearest kilometre per hour?

(A) 72 (B) 74 (C) 104 (D) 109

---

69 Building X is 30 m in height. The angle of elevation from the top of building X to the top of building Y is 35°. The distance between the two buildings is 25 m.



NOT TO SCALE

What is the height of building Y to the nearest metre?

(A) 14 m (B) 44 m (C) 48 m (D) 50 m

---

70 An integer can be a positive number or a negative number.

Which of the following statements about integers is always true?

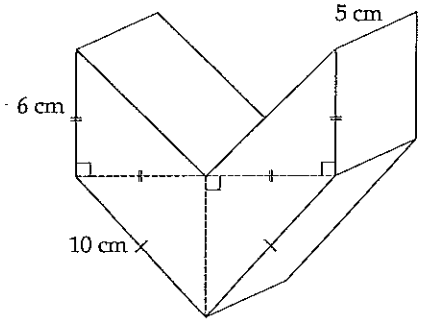
(A) A negative added to a negative gives a positive.

(B) A negative divided by a negative gives a negative.

(C) A positive subtracted from a positive gives a negative.

(D) A negative subtracted from a positive gives a positive.

71



NOT TO SCALE

What is the volume of the solid shown?

(A) 360 cm^3 (B) 420 cm^3 (C) 430 cm^3 (D) 480 cm^3

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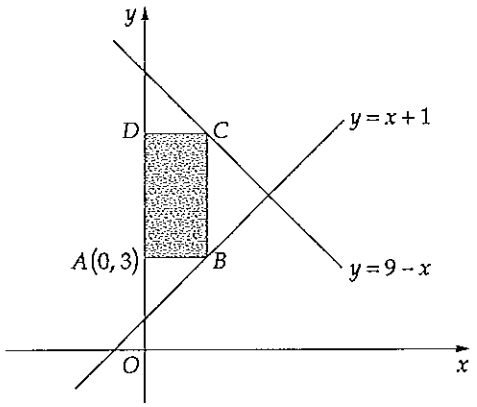
72 $ABCD$ is a rectangle.



NOT TO SCALE

What is the area of $ABCD$?

(A) 6 $units^2$ (B) 8 $units^2$ (C) 10 $units^2$ (D) 12 $units^2$

---

73 The table shows the cumulative frequency (cf) for a set of scores (x).

x	cf
1	8
2	10
3	14
4	17
5	19

Which of the following is correct about the scores?

(A) Mode = 5 (B) Mode = 19 (C) Median = 2 (D) Median = 3

---

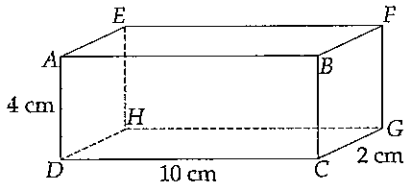
74 Rebecca takes 6 minutes to eat a pizza. Angela takes 12 minutes to eat a pizza of the same size.

At these rates, how many minutes would it take Rebecca and Angela to eat one pizza together?

(A) $3\frac{1}{3}$ (B) 4 (C) $7\frac{1}{2}$ (D) 9

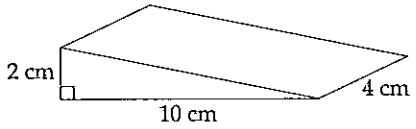
---

75 A wooden block is in the shape of a rectangular prism.



NOT TO SCALE

James cut the block to form the triangular prism shown.



Through which line was the block cut?

(A) AC (B) AH (C) BE (D) CF
