

- 1 Write 45% as a fraction in its simplest form.

Answer [1]

- 2 One January day in Munich, the temperature at noon was 3°C .
At midnight the temperature was -8°C .

Write down the difference between these two temperatures.

Answer $^{\circ}\text{C}$ [1]

- 3 (a) Calculate $\sqrt{5.7} - 1.03^2$.

Write down all the numbers displayed on your calculator.

Answer(a) [1]

- (b) Write your answer to **part (a)** correct to 3 decimal places.

Answer(b) [1]

- 4 Pedro and Eva do their homework.
Pedro takes 84 minutes to do his homework.

The ratio Pedro's time : Eva's time = 7 : 6.

Work out the number of minutes Eva takes to do her homework.

Answer min [2]

- 5 Write each of the following as a single vector.

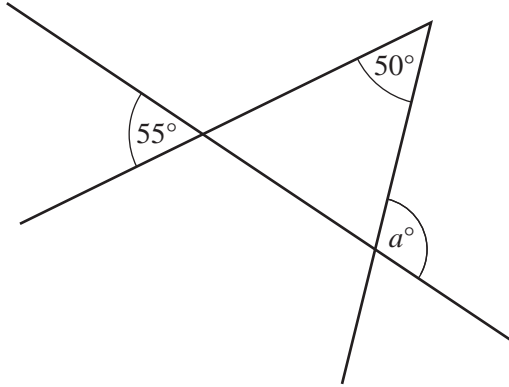
(a) $\begin{pmatrix} 6 \\ 1 \end{pmatrix} + \begin{pmatrix} -4 \\ 2 \end{pmatrix}$

Answer(a) $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(b) $4\begin{pmatrix} 2 \\ -3 \end{pmatrix}$

Answer(b) $\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

6



NOT TO
SCALE

Use the information in the diagram to find the value of a .

Answer $a = \dots\dots\dots$ [2]

7 Show that $1\frac{1}{2} \div \frac{3}{16} = 8$.

Do not use a calculator and show all the steps of your working.

Answer

[2]

8 Sebastian ran a race in 11.4 seconds, correct to 1 decimal place.

Complete the statement about the time, t seconds, that Sebastian took to run the race.

Answer $\dots\dots\dots \leq t < \dots\dots\dots$ [2]

- 9 Rearrange this equation to make b the subject.

$$a = \frac{b}{5} - 9$$

Answer $b =$ [2]

- 10 Here are the first four terms of a sequence.

4 11 18 25

Write down an expression for the n th term.

Answer [2]

- 11 x and y are integers.

- (a) Find the value of x when $-7 < x < -5$.

Answer(a) $x =$ [1]

- (b) Find the value of y when $\frac{3}{4} < \frac{y}{16} < \frac{7}{8}$.

Answer(b) $y =$ [2]

- 12 The probability of Sachin's team winning any match is 0.45.

- (a) Write down the probability of Sachin's team **not** winning any match.

Answer(a) [1]

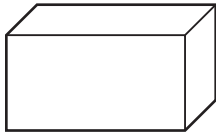
- (b) In a season there are 40 matches.

How many matches should Sachin's team expect to win in a season?

Answer(b) [2]

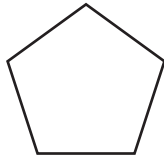
13 Complete each statement with the correct mathematical term.

(a)



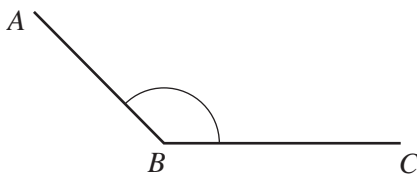
This solid is a [1]

(b)



This polygon is a regular [1]

(c)



Angle ABC is an angle [1]

14 (a) The perimeter of a square is 28 mm.

Work out the length of one side of the square.

Answer(a) mm [1]

(b) Calculate the volume of a cylinder with radius 5.2 cm and height 15 cm.

Answer(b) cm^3 [2]

15 Bruce invested \$420 at a rate of 4% per year compound interest.

Calculate the **total** amount Bruce has after 2 years.
Give your answer correct to 2 decimal places.

Answer \$ [3]

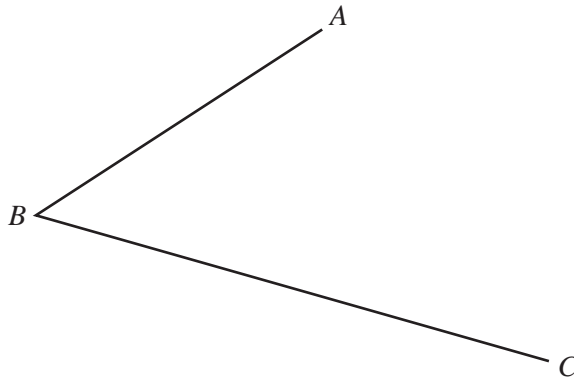
- 16 Martina changed 200 Swiss francs (CHF) into euros (€).
The exchange rate was €1 = 1.14 CHF.

Calculate how much Martina received.
Give your answer correct to the nearest euro.

Answer €..... [3]

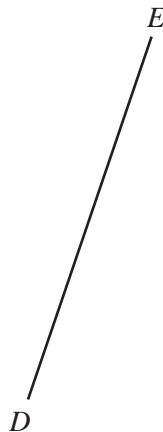
- 17 In this question use a straight edge and compasses only.
Leave in all your construction arcs.

(a) Construct the bisector of angle ABC .



[2]

(b) Construct the perpendicular bisector of the line DE .



[2]

18 (a) Which **two** of these have the same value?

$$5^{-2} \quad \frac{2}{5} \quad \left(\frac{1}{2}\right)^2 \quad \left(\frac{2}{5}\right)^2 \quad 0.2^2$$

Answer(a) and [2]

(b) Simplify.

(i) $a^6 \times a^3$

Answer(b)(i) [1]

(ii) $24b^{16} \div 6b^4$

Answer(b)(ii) [2]

19 (a) Multiply out the brackets.

$$5(x + 3)$$

Answer(a) [1]

(b) Factorise completely.

$$12xy - 3x^2$$

Answer(b) [2]

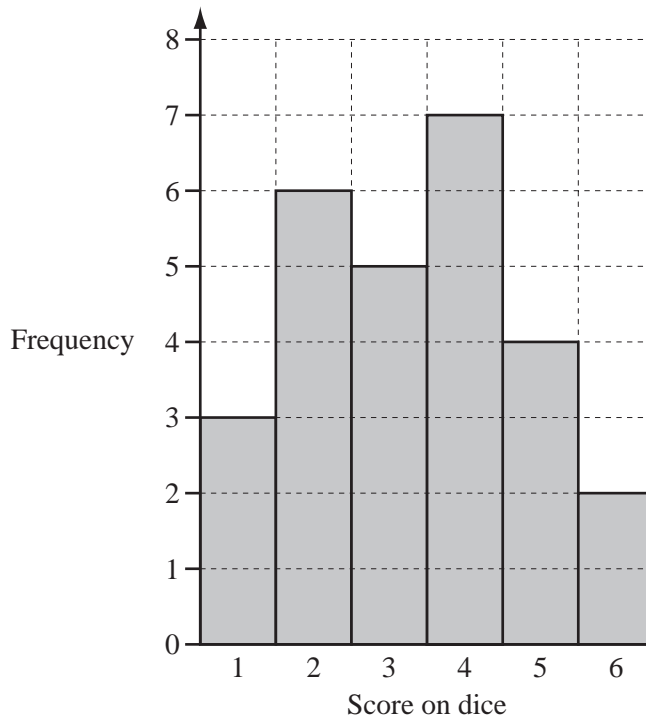
(c) Solve.

$$5x - 24 = 51$$

Answer(c) $x =$ [2]

Question 20 is printed on the next page.

- 20 Marco throws a six-sided dice 27 times.
The bar chart shows his results.



- (a) Write down the mode.

Answer(a) [1]

- (b) Work out the probability that Marco throws a number less than 5.

Answer(b) [2]

- (c) Calculate the mean.

Answer(c) [3]

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