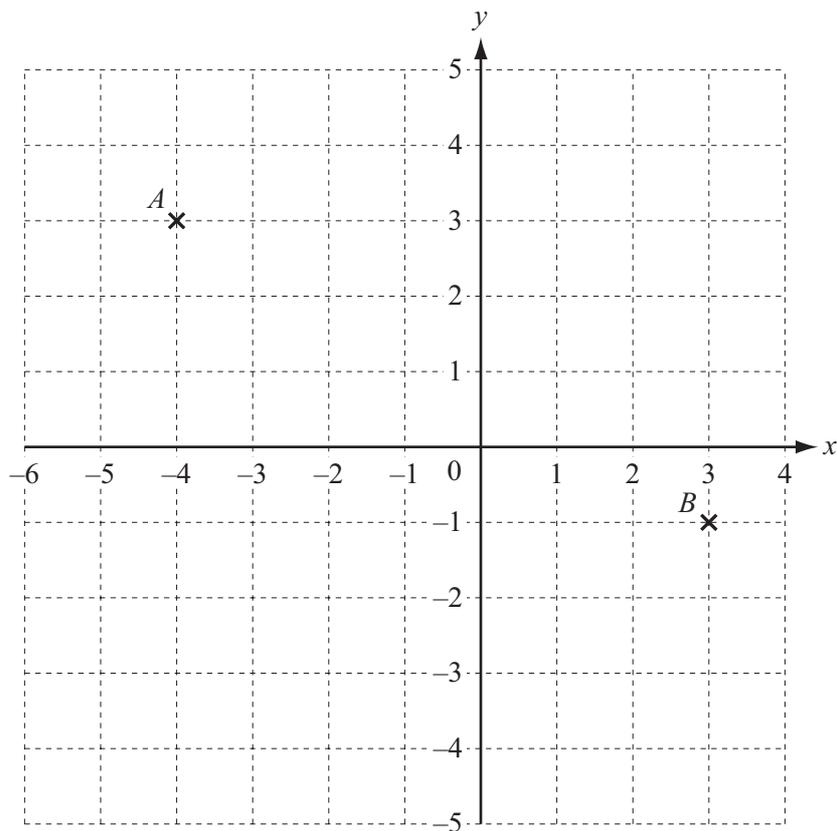




1



Points  $A$  and  $B$  are shown on the grid.

Write  $\vec{AB}$  as a column vector.

Answer  $\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

2 Write 15.0782 correct to

(a) one decimal place,

Answer(a) ..... [1]

(b) the nearest 10.

Answer(b) ..... [1]

3

## ZEBRA

Write down the letters in the word above that have

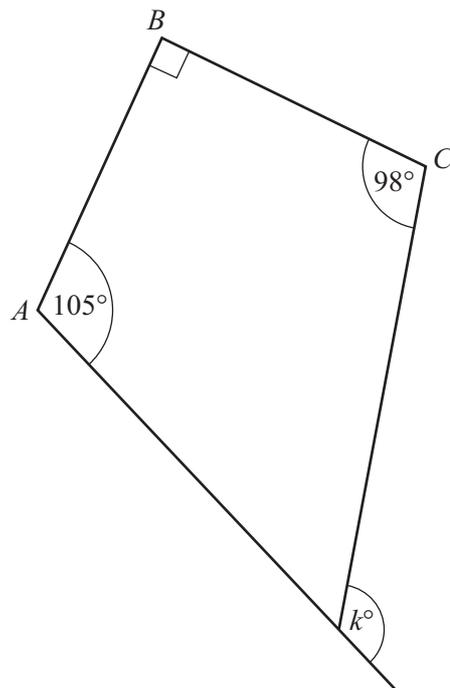
(a) exactly one line of symmetry,

Answer(a) ..... [1]

(b) rotational symmetry of order 2.

Answer(b) ..... [1]

4



NOT TO  
SCALE

In the diagram, all four lines are straight.  
Angle  $A = 105^\circ$ , angle  $B = 90^\circ$  and angle  $C = 98^\circ$ .

Find the value of  $k$ .

Answer  $k =$  ..... [2]

- 5 These are the heights, correct to the nearest centimetre, of 12 children.

132 114 151 130 132 145 163 142 153 170 132 125

Find the median height.

*Answer* ..... cm [2]

---

- 6 Write the following in order of size, smallest first.

$\pi$       3.14       $\frac{22}{7}$       3.142      3

*Answer* ..... < ..... < ..... < ..... < ..... [2]  
smallest

---

- 7 Without using a calculator, work out  $\frac{1}{4} + \frac{1}{6}$ .

Write down all the steps in your working and give your answer as a fraction in its simplest form.

*Answer* ..... [2]

---

8 Factorise completely.

$$8w^2x - 12wy$$

Answer ..... [2]

---

9 A cylinder has radius 3.6 cm and height 16 cm.

Calculate the volume of the cylinder.

Answer ..... cm<sup>3</sup> [2]

---

10 Cheryl recorded the midday temperatures in Seoul for one week in January.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Temperature (°C)	-4	-5	-3	-11	-8	-3	-1

(a) Write down the mode.

Answer(a) ..... °C [1]

(b) On how many days was the temperature lower than the mode?

Answer(b) ..... [1]

---

11 Simplify.

$$10x - 15 - 6x + 8$$

Answer ..... [2]

---

12 (a) Write down a 2-digit odd number that is a factor of 182.

Answer(a) ..... [1]

(b) Find all the prime factors of 182.

Answer(b) ..... [2]

---

13 (a) Write  $2.8 \times 10^2$  as an ordinary number.

Answer(a) ..... [1]

(b) Work out  $2.5 \times 10^8 \times 2 \times 10^{-2}$ .  
Give your answer in standard form.

Answer(b) ..... [2]

---

14 To hire a bicycle it costs \$6 for each day, plus a fixed charge of \$15.

(a) Maria pays \$39 to hire a bicycle.

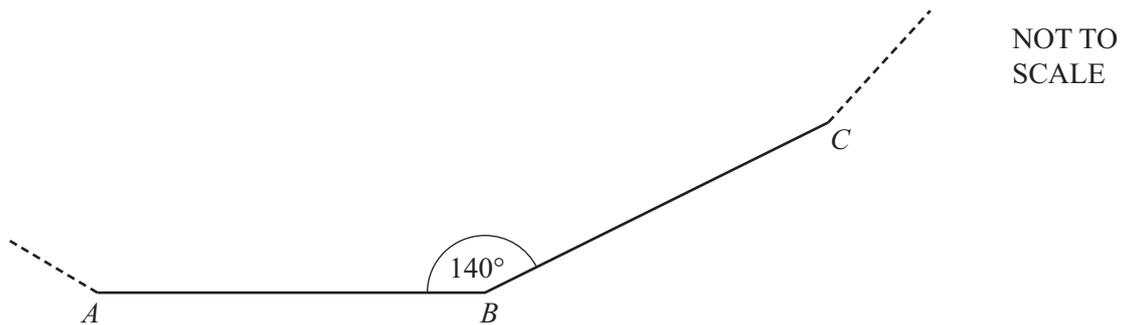
How many days does she hire it for?

Answer(a) ..... days [2]

(b) Write down a formula for the cost,  $C$  dollars, to hire a bicycle for  $d$  days.

Answer(b)  $C =$  ..... [1]

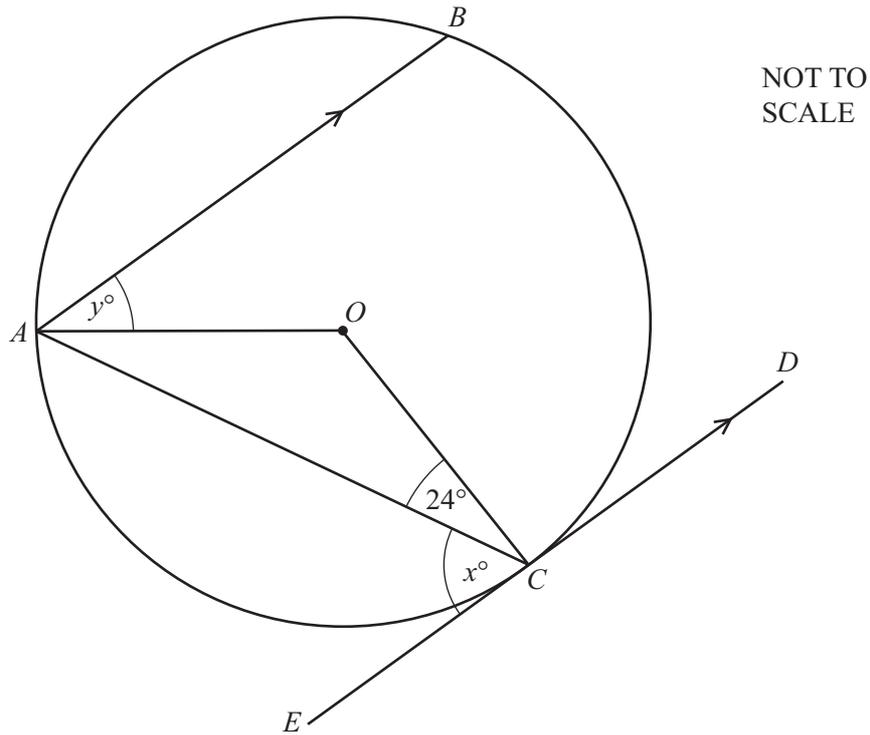
15



The diagram shows two sides,  $AB$  and  $BC$ , of a regular polygon.  
Angle  $ABC = 140^\circ$ .

Find the number of sides of this regular polygon.

Answer ..... [3]



The diagram shows a circle with centre  $O$ .  
 $ED$  is a tangent to the circle at  $C$ .  
 $AB$  is parallel to  $ED$  and angle  $ACO = 24^\circ$ .

Find the value of

(a)  $x$ ,

Answer(a)  $x = \dots\dots\dots$  [1]

(b)  $y$ .

Answer(b)  $y = \dots\dots\dots$  [2]

17 Dominic invests \$850 at a rate of 3.5% per year compound interest.

Calculate the **total** amount he has after 3 years.

*Answer* \$..... [3]

---

18 On a ship, the price of a gift is 24 euros (€) or \$30.

What is the difference in the price on a day when the exchange rate is €1 = \$1.2378?

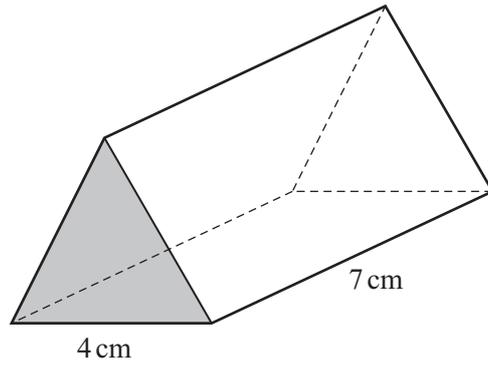
Give your answer in dollars, correct to the nearest cent.

*Answer* \$..... [3]

---

19

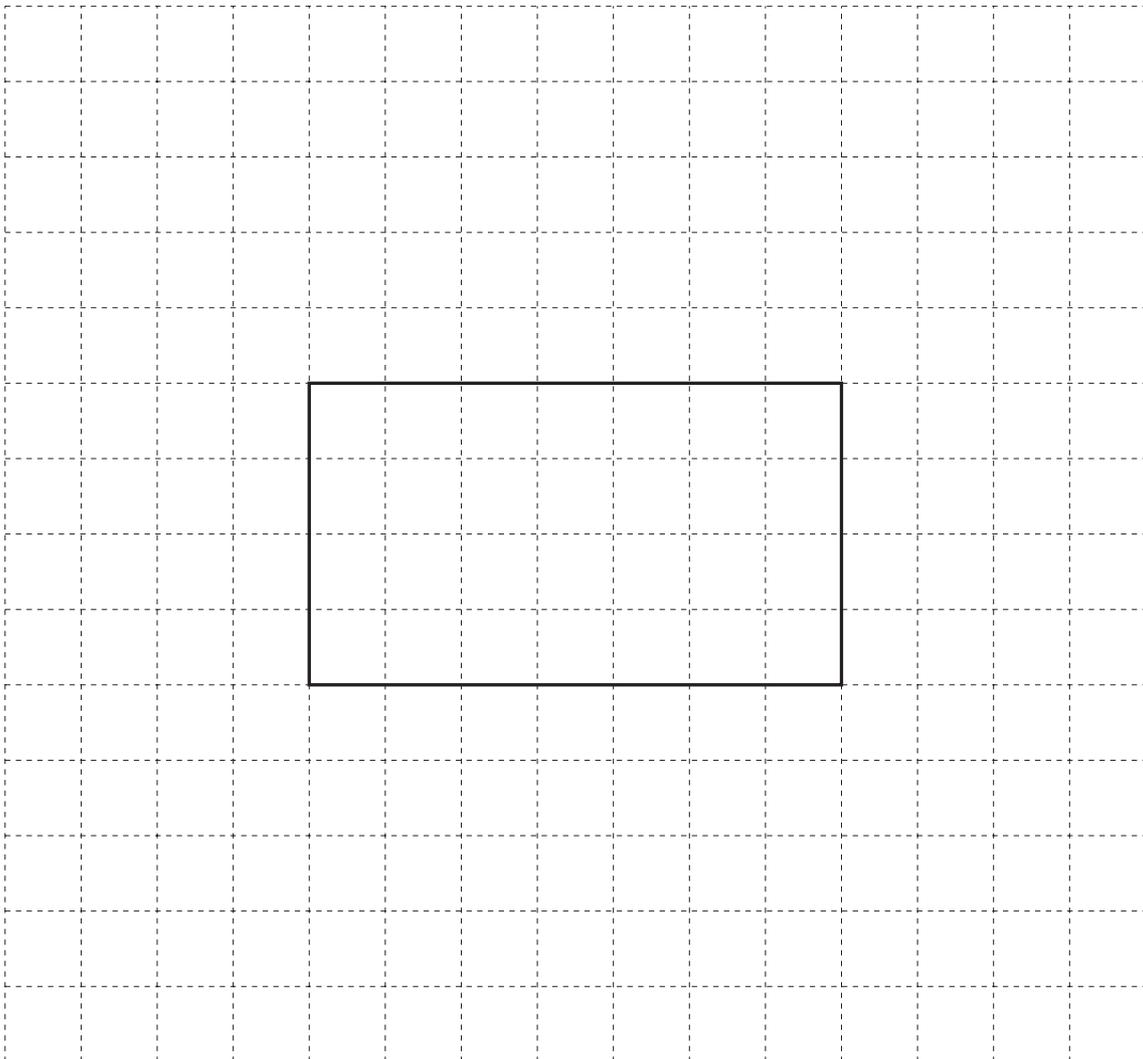
10



NOT TO  
SCALE

The diagram shows a prism.  
The cross section is an equilateral triangle.

On the grid, draw an accurate net of the prism.  
The base is drawn for you.



[3]

20 Solve the simultaneous equations.

$$5x + 2y = 16$$

$$3x - 4y = 7$$

*Answer*  $x =$  .....

$y =$  ..... [3]

---

21 (a) Find the value of  $5x^2$  when  $x = -4$ .

*Answer(a)* ..... [2]

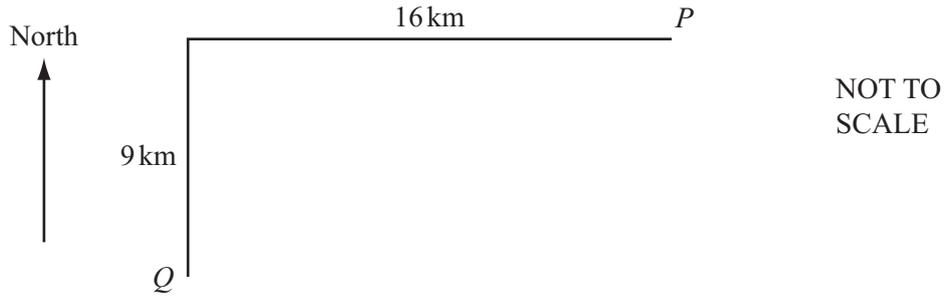
(b) Make  $x$  the subject of the formula  $y = 5x^2$ .

*Answer(b)*  $x =$  ..... [2]

---

**Question 22 is printed on the next page.**

22



The diagram shows the route of a ship that leaves a port,  $P$ .  
It travels due west for 16 km and then changes course to due south for 9 km.

(a) Calculate the straight line distance  $PQ$ .

*Answer(a)*  $PQ = \dots\dots\dots$  km [2]

(b) Use trigonometry to calculate the bearing of  $P$  from  $Q$ .

*Answer(b)*  $\dots\dots\dots$  [2]

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