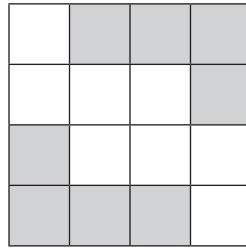


1

Write down the order of rotational symmetry of the diagram.

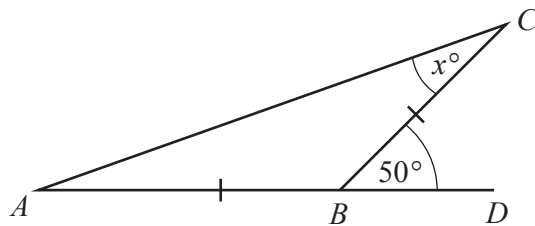
..... [1]

2 At noon the temperature in Maseru was 21°C .
 At midnight the temperature had fallen by 26°C .

Work out the temperature at midnight.

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

3


NOT TO
 SCALE

$AB = BC$ and ABD is a straight line.

Find the value of x .

$x =$ [2]

4 Write down

 (a) a square number greater than 10,

..... [1]

(b) an irrational number.

..... [1]

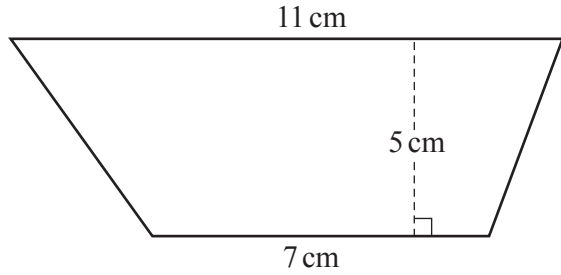
5 $y = mx + c$



Find the value of y when $m = -3$, $x = -2$ and $c = -8$.

$y = \dots\dots\dots$ [2]

6

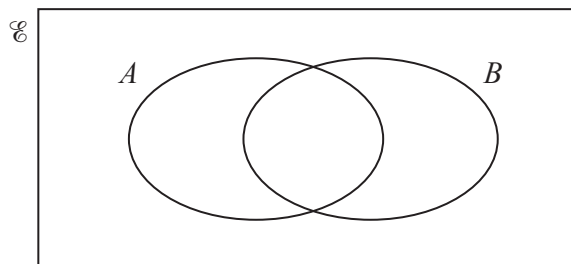


NOT TO SCALE

Calculate the area of the trapezium.

$\dots\dots\dots \text{cm}^2$ [2]

7



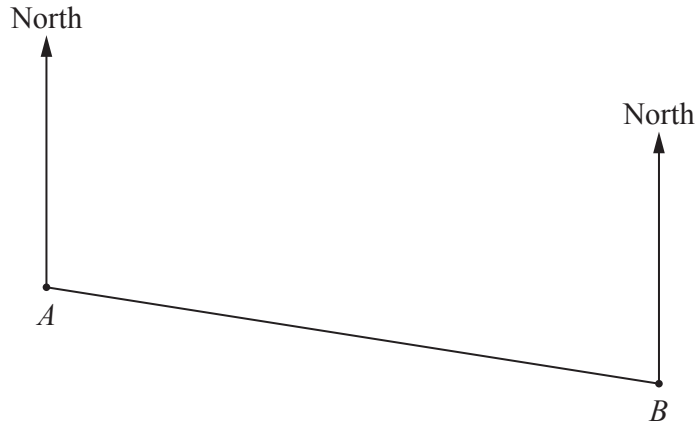
On the Venn diagram, shade the region $A \cap B$. [1]

8 Write 2^{-4} as a decimal.



$\dots\dots\dots$ [1]

9

NOT TO
SCALE

The bearing of B from A is 105° .

Find the bearing of A from B .

..... [2]

10 Simplify.



$$\frac{p}{2q} \times \frac{4pq}{t}$$

..... [2]

11 **Without using a calculator**, work out $1\frac{3}{4} - \frac{11}{12}$.



You must show all your working and give your answer as a fraction in its simplest form.

..... [3]

- 12 Roberto buys a toy for \$5.00 .
 He then sells it for \$4.60 .

R

Calculate his percentage loss.

..... % [2]

- 13 Simplify $8t^8 \div 4t^4$.

R

..... [2]

- 14 Solve the equation.

R

$$\frac{1-x}{3} = 5$$

$x =$ [2]

- 15 Ella's height is 175 cm, correct to the nearest 5 cm.

R

Write down the upper bound of Ella's height.

..... cm [1]

- 16 Calculate $(3 \times 10^{-3})^3$.

R

Give your answer in standard form.

..... [1]

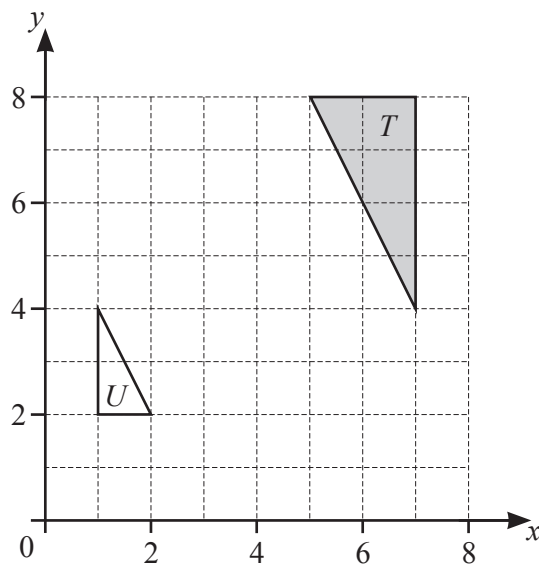
17 A train of length 105 m takes 11 seconds to pass completely through a station of length 225 m.



Calculate the speed of the train in km/h.

..... km/h [3]

18



Describe fully the **single** transformation that maps triangle *T* onto triangle *U*.

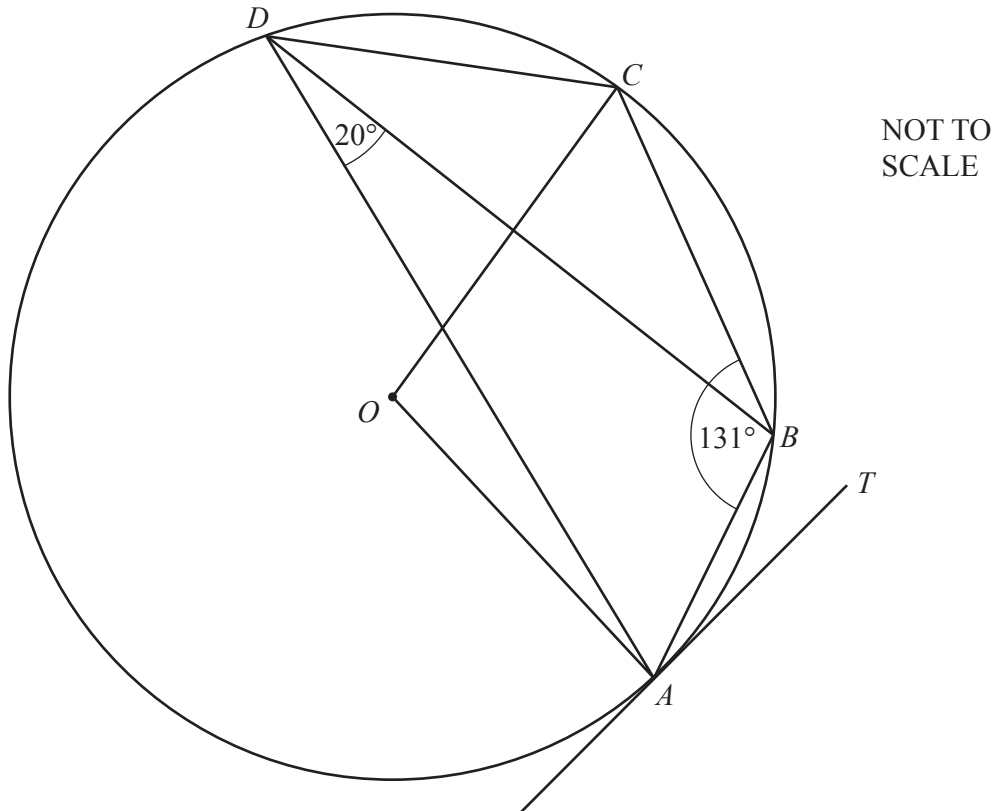
.....
 [3]

19 Make *y* the subject of the formula.



$$h^2 = x^2 + 2y^2$$

$y =$ [3]



A, B, C and D lie on the circle, centre O .
 TA is a tangent to the circle at A .
 Angle $ABC = 131^\circ$ and angle $ADB = 20^\circ$.

Find

(a) angle ADC ,

Angle $ADC = \dots\dots\dots$ [1]

(b) angle AOC ,

Angle $AOC = \dots\dots\dots$ [1]

(c) angle BAT ,

Angle $BAT = \dots\dots\dots$ [1]

(d) angle OAB .

Angle $OAB = \dots\dots\dots$ [1]

21 Simplify.



(a) $(5x^4)^3$

..... [2]

(b) $(256x^{256})^{\frac{3}{8}}$

..... [2]

22 p is directly proportional to $(q + 2)^2$.

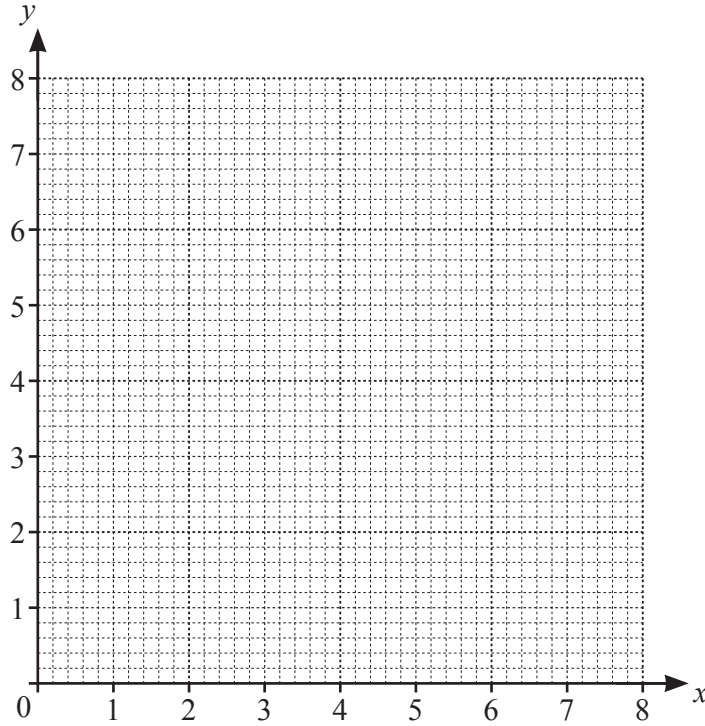


When $q = 1$, $p = 1$.

Find p when $q = 10$.

$p =$ [3]

23



(a) By drawing suitable lines and shading unwanted regions, find the region, R , where

$$x \geq 2, \quad y \geq x \text{ and } 2x + y \leq 8.$$

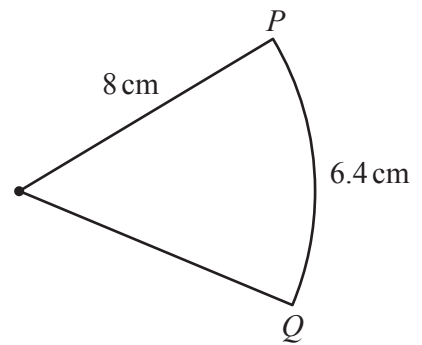
[5]

24



The diagram shows a sector of a circle of radius 8 cm.
The length of the arc PQ is 6.4 cm.

Find the area of the sector.



NOT TO
SCALE

..... cm² [4]

25 Simplify.



$$\frac{2x^2 + x - 15}{ax + 3a - 2bx - 6b}$$

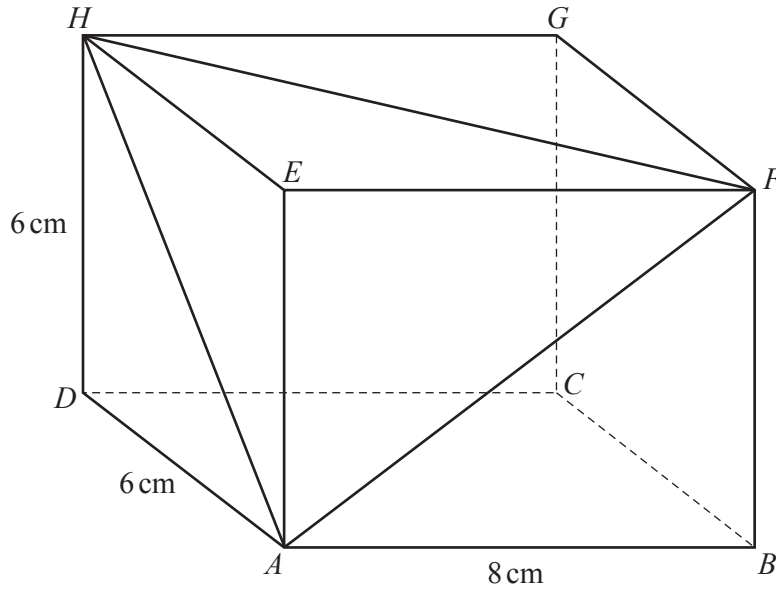
..... [5]

26 $\sqrt[3]{y^2} = \sqrt{x}$ and $y = \sqrt{x}$.



Find the value of n .

$n =$ [2]



NOT TO SCALE

The diagram shows a cuboid.
 $AB = 8\text{ cm}$, $AD = 6\text{ cm}$ and $DH = 6\text{ cm}$.

Calculate angle HAF .

Angle $HAF = \dots\dots\dots [6]$