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0607/21

May/June 2018

45 minutes

Additional Materials: Geometrical Instruments

READ THESE INSTRUCTIONS FIRST

DO **NOT** WRITE IN ANY BARCODES.

The total number of marks for this paper is 40.

This document consists of **8** printed pages.

Formula List

For the equation $ax^2 + bx + c = 0$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Curved surface area, A , of cylinder of radius r , height h . $A = 2\pi rh$

Curved surface area, A , of cone of radius r , sloping edge l . $A = \pi rl$

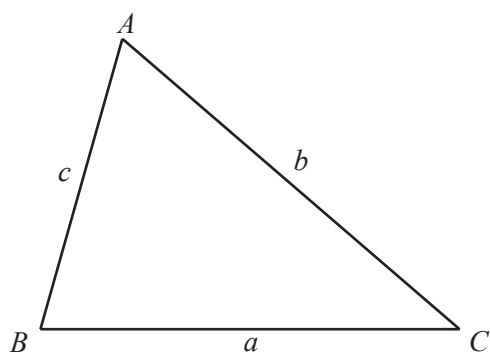
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

Volume, V , of pyramid, base area A , height h . $V = \frac{1}{3}Ah$

Volume, V , of cylinder of radius r , height h . $V = \pi r^2 h$

Volume, V , of cone of radius r , height h . $V = \frac{1}{3}\pi r^2 h$

Volume, V , of sphere of radius r . $V = \frac{4}{3}\pi r^3$



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area} = \frac{1}{2}bc \sin A$$

Answer **all** the questions.

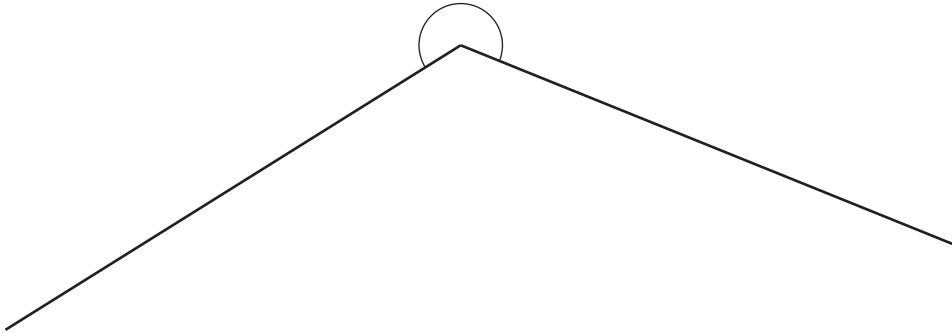
- 1 (a) Work out $5 - 7 \times 2 + 8$.

..... [1]

- (b) Find $\sqrt[3]{0.001}$.

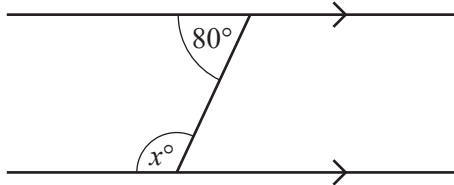
..... [1]

- 2 (a) Find, by measuring, the size of this reflex angle.



..... [1]

- (b)



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Work out the value of x .

$x =$ [1]

- (c) Find the size of one exterior angle of a regular 18-sided polygon.

..... [2]

- 3 Solve these simultaneous equations.

$$x - 3y = 7$$

$$x - 2y = 5$$

$$x = \dots\dots\dots$$

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

- 4 (a) Write 0.68 as a fraction in its lowest terms.

$$\dots\dots\dots [1]$$

- (b) Work out $\frac{3}{7} \div \frac{8}{9}$.

$$\dots\dots\dots [2]$$

- 5 These are the first five terms of a sequence.

1 0 1 4 9

Find the n th term of this sequence.

$$\dots\dots\dots [2]$$

- 6 (a) Expand and simplify.

$$(2p - 7q)(p + q)$$

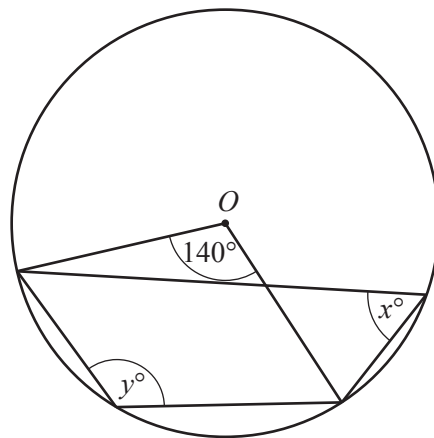
..... [2]

- (b) Factorise.

$$2 - t - 2a + at$$

..... [2]

7



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O is the centre of the circle.

Find the value of x and the value of y .

$x =$

$y =$ [2]

- 8 y varies inversely as x^2 .
When $x = 3$, $y = 4$.

Find y in terms of x .

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

- 9 (a) Find the value of $27^{\frac{2}{3}}$.

$$\dots\dots\dots [1]$$

- (b) Simplify $18h^{18} \div 3h^3$.

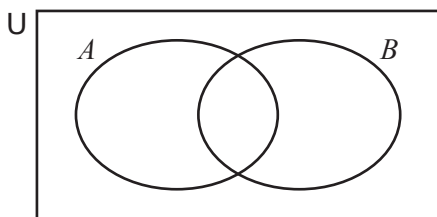
$$\dots\dots\dots [2]$$

10 $v^2 = u^2 - 2as$

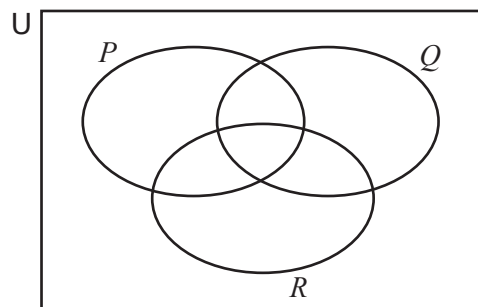
Find s in terms of a , u and v .

$$s = \dots\dots\dots [2]$$

- 11 In each Venn diagram, shade the region indicated.



$$(A \cup B)'$$



$$(P \cup Q) \cap R$$

[2]

- 12 (a) Simplify fully.

$$\sqrt{700}$$

..... [1]

- (b) Rationalise the denominator.

$$\frac{1}{7 - \sqrt{2}}$$

..... [2]

- 13 Simplify fully.

$$\frac{3t - t^2}{9 - t^2}$$

..... [3]

- 14 (a) Write down the value of $\log_9 3$.

..... [1]

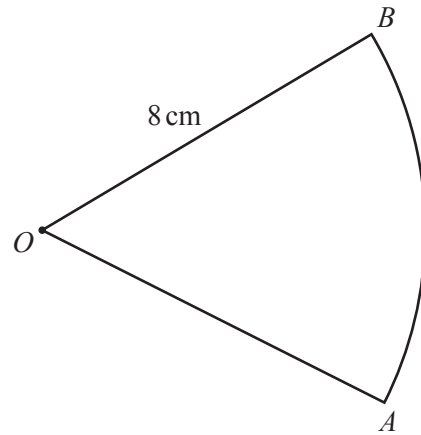
- (b) $2 \log 2 + \log 11 = \log x$.

Find the value of x .

$x =$ [2]

Question 15 is printed on the next page.

15

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The length of the arc $AB = \frac{4\pi}{3}$ cm.

The area of the sector OAB is $k\pi \text{ cm}^2$.

Find the value of k .

$k = \dots\dots\dots [3]$

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