



CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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0607/23

October/November 2020

45 minutes

You will need: Geometrical instruments

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [].

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[Turn over

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 . $A = \pi rl$

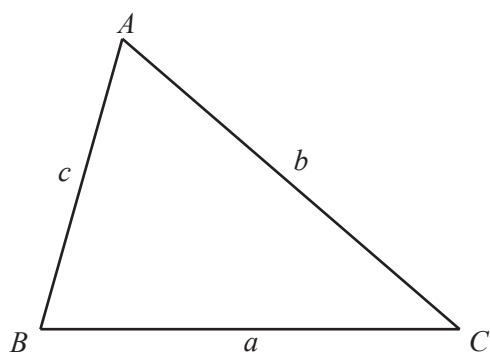
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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 Work out $(0.2)^3$.

..... [1]

- 2 Solve the equation.

$$2x - 7 = -3$$

$x =$ [2]

- 3 Work out $\frac{5}{6} \div \frac{15}{16}$.

Give your answer as a fraction in its lowest terms.

..... [2]

- 4 Find the integer values of x when $-1 \leq x < 3$.

..... [2]

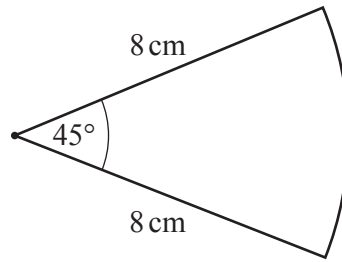
- 5 Solve the simultaneous equations.

$$\begin{aligned} 2p - 3q &= 7 \\ p + 3q &= 2 \end{aligned}$$

$p =$

$q =$ [2]

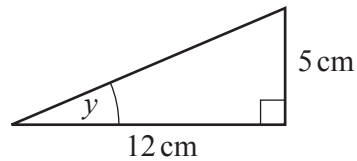
- 6 Find the area of the sector.
Give your answer, in terms of π , in its simplest form.



NOT TO
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..... cm^2 [2]

- 7 Find, as a fraction, the value of $\sin y$.



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$\sin y =$ [3]

- 8 Find the value of

(a) $\left(\frac{1}{2}\right)^{-3}$,

..... [1]

(b) $\log_5 125$.

..... [1]

- 9 Simplify $4x^4 \times 5x^5$.

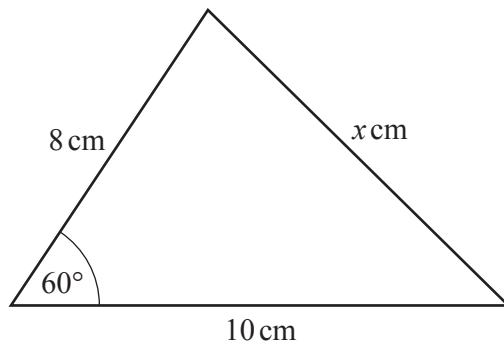
..... [2]

- 10 $J = m(k^2 + h^2)$

Rearrange the formula to make h the subject.

$h =$ [3]

- 11

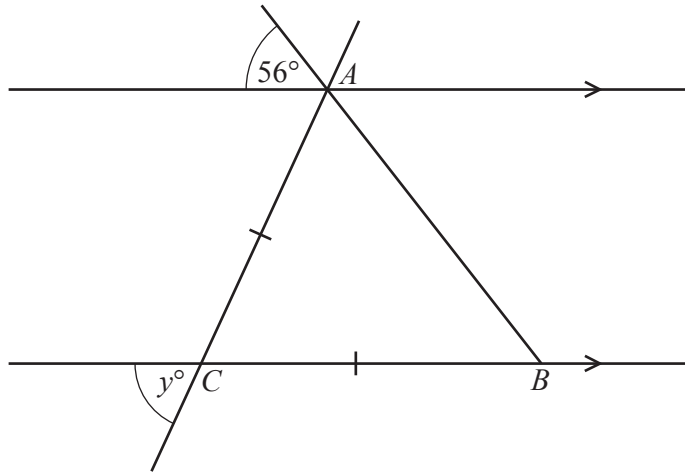


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Find the value of x^2 .

$x^2 =$ [3]

12

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In the diagram, A , B and C are points on parallel lines.
 $AC = BC$.

Work out the value of y .

$y = \dots\dots\dots$ [3]

13 $(2\sqrt{3} - 3\sqrt{2})^2 = p + q\sqrt{6}$

Find the value of p and the value of q .

$p = \dots\dots\dots$

$q = \dots\dots\dots$ [3]

- 14** y varies inversely as $(x-3)^2$.
When $x = 1$, $y = 4$.

Find y in terms of x .

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

- 15** $\log x = 2 \log 3 - 5 \log 2$

Find the value of x .

$$x = \dots\dots\dots [2]$$

- 16** α is acute and $\tan \alpha = x$.

Find, in terms of x ,

(a) $\tan(180 - \alpha)$,

$$\tan(180 - \alpha) = \dots\dots\dots [1]$$

(b) $\tan(90 - \alpha)$.

$$\tan(90 - \alpha) = \dots\dots\dots [1]$$

Question 17 is printed on the next page.

17 Simplify.

$$\frac{3x - 6y - ax + 2ay}{x^3 - 2x^2y}$$

..... [4]

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