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0607/21

October/November 2016

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 . $A = \pi rl$

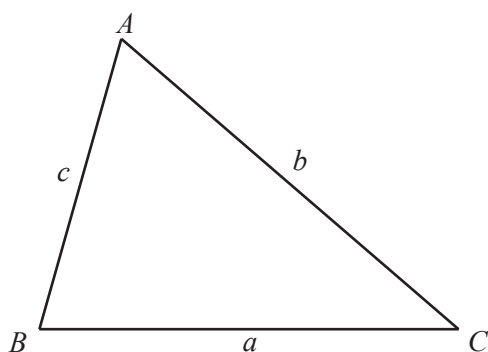
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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 Sara and Klaus share some money in the ratio 5 : 4 .
Klaus receives \$48.

Work out how much Sara receives.

\$ [2]

2

A P N F H

From the list above, write down the letter which has

line symmetry only,

line symmetry and rotational symmetry,

rotational symmetry only.

[2]

- 3 The list shows the quiz scores of 13 students.

11 11 11 12 12 13 14 15 15 16 16 19 19

Find

(a) the mode,

..... [1]

(b) the median,

..... [1]

(c) the upper quartile.

..... [1]

- 4 Write 4.07×10^{-3} as an ordinary number.

..... [1]

5 $v = u + at$

(a) Find v when $u = 5$, $a = -1$ and $t = 1.5$.

$v =$ [2]

(b) Rearrange the formula to write a in terms of t , u and v .

$a =$ [2]

6 Work out $\frac{8}{9} - \frac{7}{18}$, giving your answer in its lowest terms.

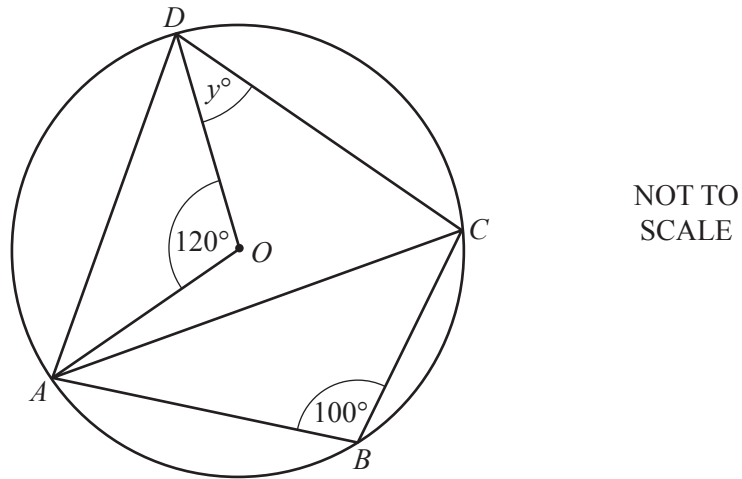
..... [3]

7 The interior angle of a regular polygon is 176° .

Work out how many sides the polygon has.

..... [3]

8

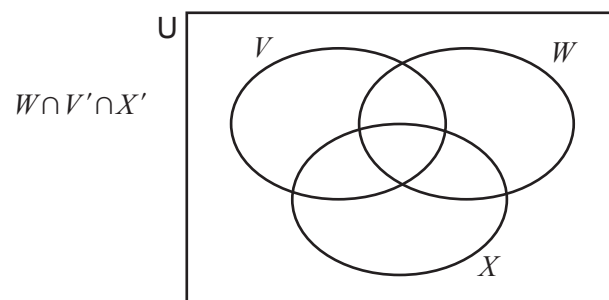
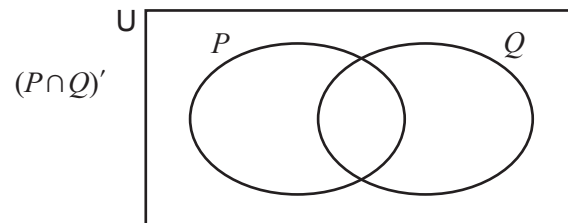


A, B, C and D lie on the circle, centre O .

Work out the value of y .

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

9 On each Venn diagram, shade the area indicated.



[2]

- 10** Multiply out the brackets and simplify.

$$(2\sqrt{3} - 1)(\sqrt{3} + 2)$$

..... [2]

- 11** Solve the equation.

$$|x - 3| = 1$$

..... [2]

- 12** Find the value of $25^{-\frac{3}{2}}$.

..... [2]

- 13** x is positive and $x^8 = 3^4$.

Find the exact value of x .

$x =$ [2]

- 14** The roots of the quadratic equation $x^2 + ax + b = 0$ are 5 and -2 .

Find the value of a and the value of b .

$$a = \dots\dots\dots$$

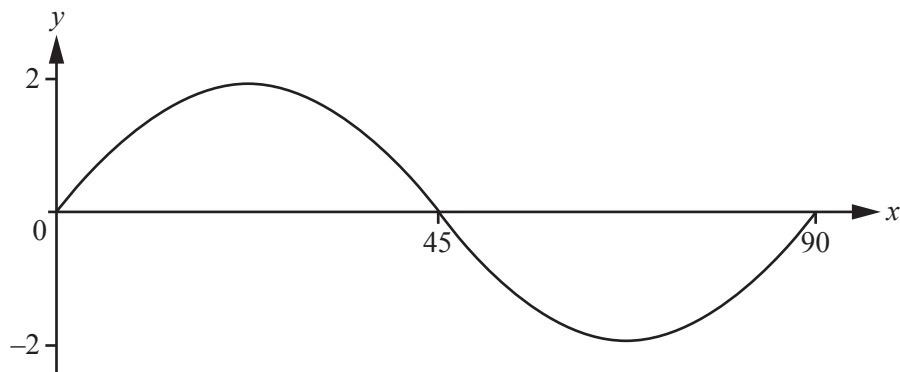
$$b = \dots\dots\dots [3]$$

- 15** y is inversely proportional to the square root of $(x - 3)$.
When $x = 7, y = 3$.

Find y in terms of x .

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

16



The diagram shows the graph of $y = a \sin(bx)^\circ$, for $0 \leq x \leq 90$.

Find the value of a and the value of b .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots [2]$$

Question 17 is printed on the next page

17 (a) $2 \log 3 = \log k$

Find the value of k .

$$k = \dots\dots\dots [1]$$

(b) $\log 5 - \log 2 = \log p$

Find the value of p .

$$p = \dots\dots\dots [1]$$

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