

11 The diagram shows a quadrilateral  $ABCD$

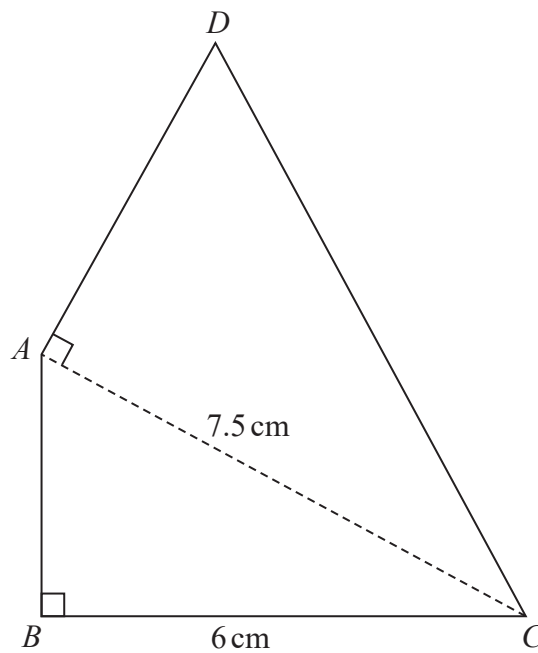


Diagram **NOT**  
accurately drawn

In the diagram,  $ABC$  and  $DAC$  are right-angled triangles.

$$BC = 6 \text{ cm} \quad AC = 7.5 \text{ cm}$$

The area of quadrilateral  $ABCD$  is  $31.5 \text{ cm}^2$

Work out the length of  $AD$

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Question 11 continued.

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..... cm

**(Total for Question 11 is 6 marks)**



P 6 8 7 8 9 A 0 1 3 2 8

12  $P = 3^3 \times 5^2 \times 7$   
 $Q = 3^2 \times 5 \times 7^2$

(a) Write down the highest common factor (HCF) of  $P$  and  $Q$

.....  
(1)

$P = 3^3 \times 5^2 \times 7$   
 $Q = 3^2 \times 5 \times 7^2$

(b) Work out the value of  $P^3 \times Q$

Give your answer in the form  $3^x \times 5^y \times 7^z$  where  $x, y$  and  $z$  are positive integers.

.....  
(2)

(Total for Question 12 is 3 marks)

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13 Here is the number of runs scored by a baseball team in each of its 15 games this season.

The number of runs have been arranged in order of size.

0 1 1 3 5 6 7 7 8 9 9 12 12 15 16

Work out the interquartile range of the number of runs.

.....  
(Total for Question 13 is 2 marks)



14 Solve the simultaneous equations

$$3x - 5y = 25$$

$$4x + 3y = 14$$

Show clear algebraic working.

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

$$y = \dots\dots\dots$$

**(Total for Question 14 is 4 marks)**

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15

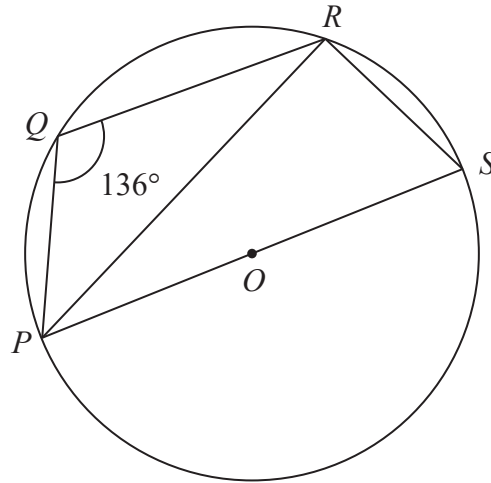


Diagram NOT accurately drawn

$P$ ,  $Q$ ,  $R$  and  $S$  are points on a circle with centre  $O$

$PS$  is a diameter of the circle.

Angle  $PQR = 136^\circ$

Work out the size of angle  $RPS$

(Total for Question 15 is 3 marks)



16 (a) Expand and simplify  $(3x - 1)(x + 2)(3x + 1)$

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.....  
(3)

(b) Simplify fully  $\left(\frac{2x^5}{8xy^2}\right)^{-2}$

.....  
(3)

(Total for Question 16 is 6 marks)



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17 Here is a parallelogram  $PQRS$ , in which angle  $SPQ$  is acute.

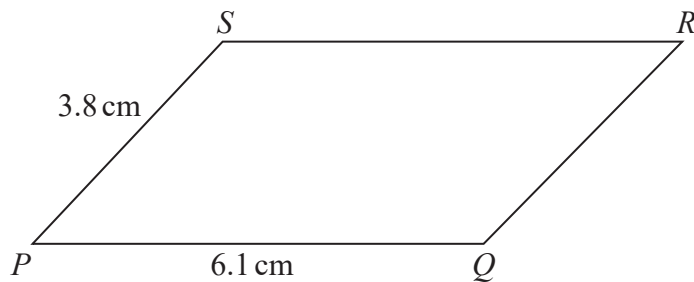


Diagram **NOT** accurately drawn

$PQ = 6.1 \text{ cm}$        $PS = 3.8 \text{ cm}$

The area of the parallelogram is  $18 \text{ cm}^2$

Work out the length of  $QS$

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 17 is 5 marks)





18 The diagram shows a cube  $ABCDEFGH$  with sides of length 6 cm.

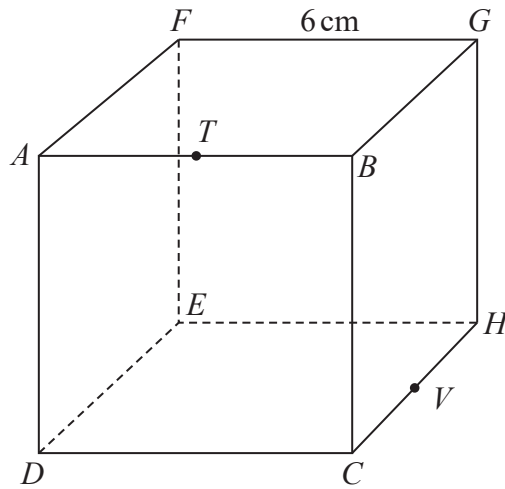


Diagram NOT accurately drawn

$T$  is the midpoint of  $AB$  and  $V$  is the midpoint of  $CH$

Work out the distance from  $T$  to  $V$  in a straight line through the cube.  
Give your answer in the form  $\sqrt{a}$  cm where  $a$  is an integer.

..... cm

(Total for Question 18 is 4 marks)

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