

Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Show that $3\frac{1}{5} \times 1\frac{5}{6} = 5\frac{13}{15}$

(Total for Question 1 is 3 marks)

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2 Given that $a < b < c$

the four whole numbers a, a, b and c have

- a mode of 7
- a median of 8.5
- a mean of 9

Work out the value of a , the value of b and the value of c .

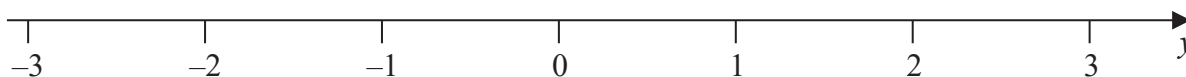
$a =$

$b =$

$c =$

(Total for Question 2 is 4 marks)

3 (a) On the number line, show the inequality $-2 \leq y < 1$



(2)

n is an integer.

(b) Write down all the values of n that satisfy $-3.4 < n \leq 2$

.....
(2)

(Total for Question 3 is 4 marks)



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4 A train journey from Paris to Amsterdam took 3 hours 24 minutes.
The total distance the train travelled was 433.5 km.

Work out the average speed of the train.
Give your answer in kilometres per hour.

..... km/h

(Total for Question 4 is 3 marks)



5 The diagram shows a cuboid and a cylinder.

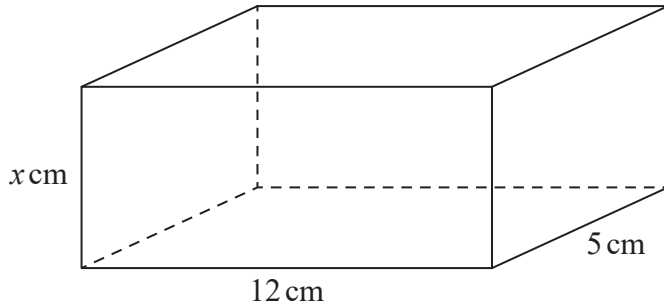
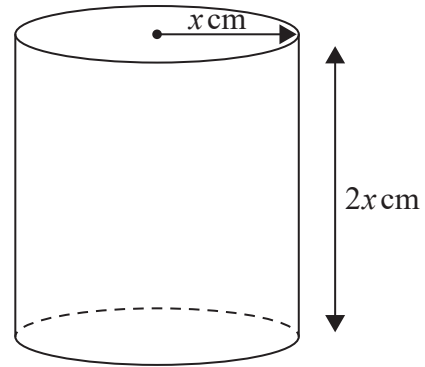


Diagram NOT accurately drawn



The dimensions of the cuboid are x cm by 12 cm by 5 cm.
The volume of the cuboid is 270 cm^3

The radius of the cylinder is x cm.
The height of the cylinder is $2x$ cm.

- (a) Work out the volume of the cylinder.
Give your answer correct to the nearest whole number.

..... cm^3
(3)

- (b) Change 1 m^3 to cm^3

..... cm^3
(1)

(Total for Question 5 is 4 marks)



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6 (a) Make c the subject of $A = \frac{c}{y} - 5z$

.....
(2)

(b) Write down the value of g^0

.....
(1)

(c) Factorise $x^2 - 11x + 24$

.....
(2)

(Total for Question 6 is 5 marks)



7 Kuro invests 50 000 yen for 3 years in a savings account.
She gets 2.4% per year compound interest.

Work out how much money Kuro will have in her savings account at the end of the 3 years.
Give your answer correct to the nearest yen.

..... yen

(Total for Question 7 is 3 marks)

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- 8 The diagram shows a regular pentagon, $ABCDE$, a regular hexagon, $CFGHID$, and a quadrilateral, $EDIJ$.

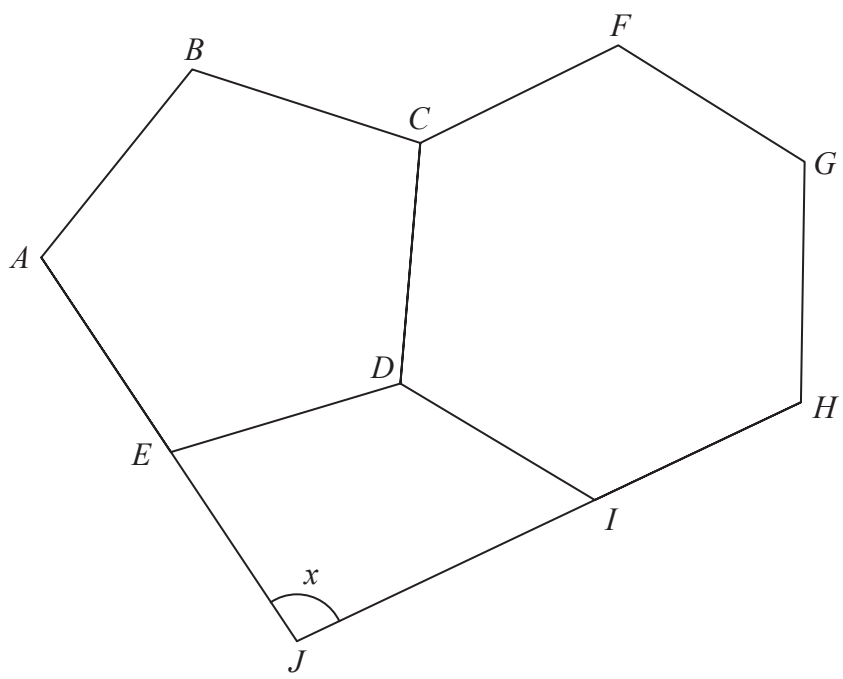


Diagram NOT accurately drawn

AEJ and HIJ are straight lines.

Work out the size of the angle marked x .
Show your working clearly.

(Total for Question 8 is 5 marks)



9 $A = 2^8 \times 3^5 \times 11^4$ $B = 2^6 \times 3 \times 11^8$

(a) Find the highest common factor (HCF) of A and B .

..... (2)

(b) Find the lowest common multiple (LCM) of $2A$ and $3B$.
Give the LCM as a product of powers of its prime factors.

..... (2)

(Total for Question 9 is 4 marks)

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10 The diagram shows one face of a wall.
This face is in the shape of a pentagon with exactly one line of symmetry.

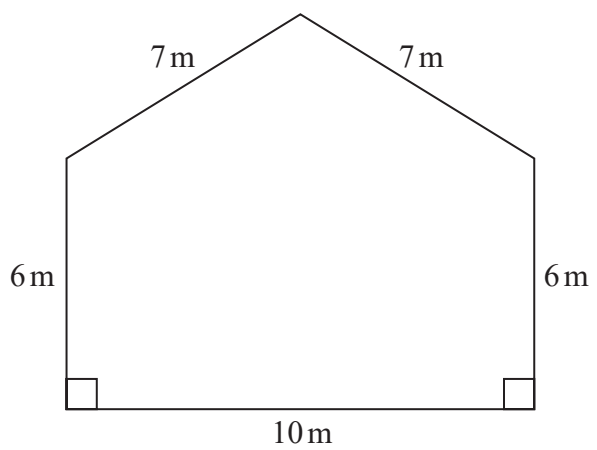


Diagram NOT accurately drawn

Omondi is going to paint this face of the wall once.
He has to buy all the paint that he needs to use.

The paint in each tin of paint Omondi is going to buy will cover 16 m^2 of the face of the wall.

Work out the least number of tins of paint Omondi will need to buy.
Show your working clearly.

(Total for Question 10 is 5 marks)

