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Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 A train takes 6 hours 39 minutes to travel from New Delhi to Kanpur.
The train travels a distance of 429 km.

Work out the average speed of the train.
Give your answer in km/h correct to one decimal place.

..... km/h

(Total for Question 1 is 3 marks)



2 Ava writes down five whole numbers.

For these five numbers

the median is 7

the mode is 8

the range is 5

Find a possible value for each of the five numbers that Ava writes down.

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.....
(Total for Question 2 is 3 marks)



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3 Gladys buys a table for \$465 to sell in her shop.

She sells the table for \$520

- (a) Work out the percentage profit that Gladys makes from the sale of the table.
Give your answer correct to 3 significant figures.

.....%
(3)

Gladys has a sale in her shop.

She decreases all the normal prices by 12%
The normal price of an armchair was \$550

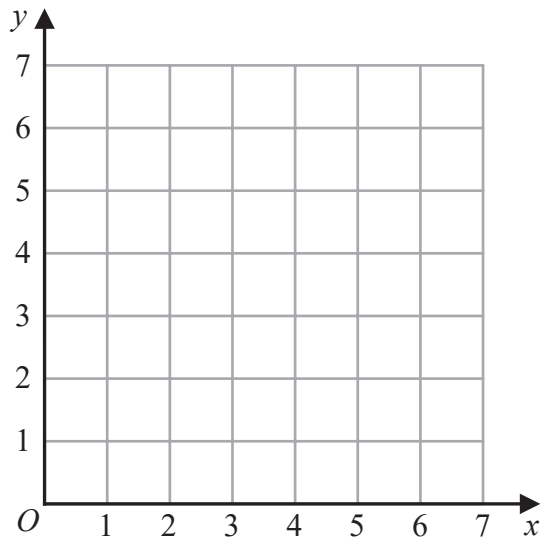
- (b) Work out the sale price of the armchair.

\$.....
(3)

(Total for Question 3 is 6 marks)



4



(a) On the grid, draw and **label** the straight line with equation

(i) $x = 1.5$

(ii) $y = x$

(iii) $x + y = 6$

(3)

(b) Show, by shading on the grid, the region that satisfies **all three** of the inequalities

$$x \geq 1.5$$

$$y \geq x$$

$$x + y \leq 6$$

Label the region **R**.

(1)

(Total for Question 4 is 4 marks)



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5 (a) Expand and simplify $4x(2x + 5) - 3x(2x - 3)$

.....
(2)

Given that $\frac{y^5 \times y^n}{y^6} = y^{13}$

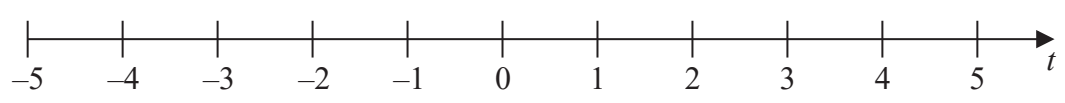
(b) work out the value of n .

$n =$
(2)

(c) (i) Solve the inequality $7t - 8 < 2t + 7$

.....
(2)

(ii) On the number line below, represent the solution set of the inequality solved in part (c)(i)



(1)

(Total for Question 5 is 7 marks)



6 (a) Write down the value of y^0

.....
(1)

(b) Work out $\frac{9.6 \times 10^{141} + 6.4 \times 10^{140}}{3.2 \times 10^{16}}$

Give your answer in standard form.

.....
(3)

(Total for Question 6 is 4 marks)



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7 There are 5 cocoa pods in a bag.
The mean weight of the 5 cocoa pods is 398 grams.

A sixth cocoa pod is put into the bag.
The mean weight of the 6 cocoa pods is 401 grams.

Work out the weight of the sixth cocoa pod that is put into the bag.

..... grams

(Total for Question 7 is 3 marks)



8 A , B and C are points on a circle with centre O .

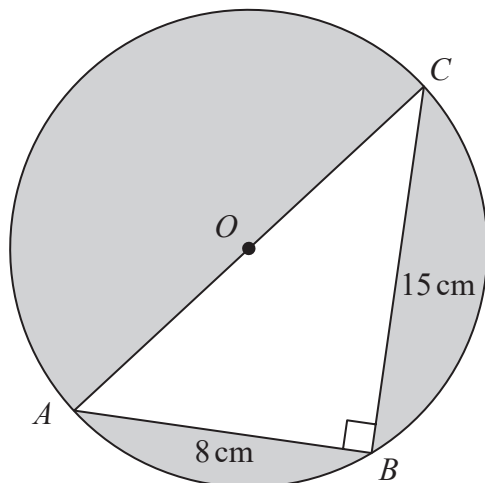


Diagram NOT accurately drawn

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AOC is a diameter of the circle.

$AB = 8\text{ cm}$ $BC = 15\text{ cm}$

Angle $ABC = 90^\circ$

Work out the total area of the regions shown shaded in the diagram.
Give your answer correct to 3 significant figures.



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..... cm²

(Total for Question 8 is 5 marks)

9

$$A = 2^3 \times 3^2 \times 5^2 \times 11$$

$$B = 2^4 \times 3 \times 5^4 \times 13$$

Find the lowest common multiple (LCM) of A and B .
Give your answer as a product of powers of prime numbers.

.....
(Total for Question 9 is 2 marks)

