

Higher Interleaving Quiz

Branch 10

Quizzes 1 to 3



Quiz 1

Q	Topic	Σ	R	A	G
1	Product of Prime Factors				
2	Inequalities				
3	Transformations				
4	Cumulative Frequency				

Home Study Focus

Home Study Completed

Quiz 2

Q	Topic	Σ	R	A	G
1	Reverse Percentage				
2	Simultaneous Equations				
3	Trigonometry				
4	Scatter Graph				

Home Study Focus

Home Study Completed

Quiz 3

Q	Topic	Σ	R	A	G
1	Recurring Decimals				
2	Algebraic Fractions				
3	Similar Shapes				
4	Histogram				

Home Study Focus

Home Study Completed



Higher Interleaving Quiz

Branch 10 Quiz 1

1) Express 520 as a product of it's prime factors. (3 marks)

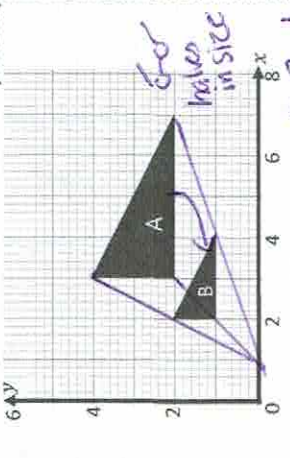
520
 2 260
 2 130
 2 65
 5 13
 2 x 2 x 2 x 5 x 13

Answer: $2^3 \times 5 \times 13$

2) Solve $12 - \frac{1}{3}x < 5$ (3 marks)

$+\frac{1}{3}x$ $+\frac{1}{3}x$
 $12 < \frac{1}{3}x + 5$
 -5 -5
 $7 < \frac{1}{3}x$
 $\times 3$ $\times 3$
 $21 < x$

3) Describe fully the transformation of A onto B (3 marks)

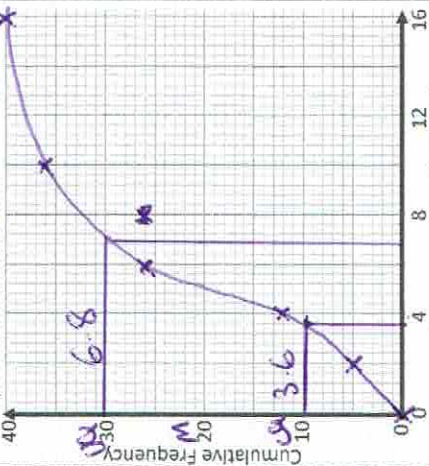


Enlargement S.F. = $\frac{2}{1} = \frac{2}{1}$
 Centre (1, 0)

4) On James farm the times that 40 cows took eat their food are given in the frequency table.

Time (t) in mins	Frequency	CF
$0 < t \leq 2$	5	5
$2 < t \leq 4$	7	12
$4 < t \leq 6$	14	26
$6 < t \leq 10$	10	36
$10 < t \leq 16$	4	40

a) Draw a cumulative frequency graph to represent this information. (3 marks)



b) Use your graph to find an estimate for the interquartile range. (3 marks)

$6.8 - 3.6 = 3.2 \pm 0.8$

Answer:

Q	Topic	Σ	R	A	G
1	Product of Prime Factors				
2	Inequalities				
3	Transformations				
4	Cumulative Frequency				



Higher Interleaving Quiz

Branch 10 Quiz 2

- 1) James farm unfortunately was caught up in the bovine spongiform encephalopathy outbreak in 1993, more commonly known as mad cow disease. This left him with 120 cows, which was 24% of his herd. How many cows did he have before the outbreak. (2 marks)

$$24\% = 120$$

$$1\% = 5 \quad \downarrow = 24$$

$$100\% = 500 \quad \downarrow \times 100$$

Answer: 500

- 2) James buys 60 bags of feed for his farm. There are x bags that weigh 2 kg. There are y bags that weigh 3 kg. (1 mark)

- a) Write down an equation connecting x and y . (1 mark)

Answer: $x + y = 60$

- b) The total weight of the bags is 165 kg. Use algebra to work out the values of x and y . You must show your working out. (4 marks)

$$2x + 3y = 165$$

$$x + y = 60 \quad \times 3$$

$$3x + 3y = 180 \quad \text{---} \quad \textcircled{5}$$

$$2x + 3y = 165 \quad \text{---} \quad \textcircled{1}$$

$$x = 15$$

$$\text{Sub in } x + y = 60$$

$$15 + y = 60$$

$$-15 \quad y = 45$$

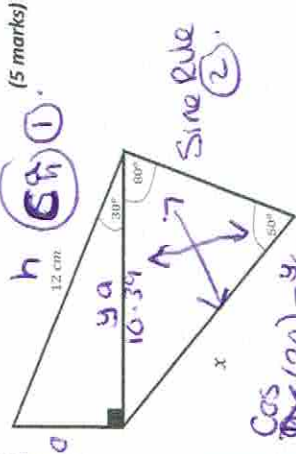
$x = 15 \quad y = 45$



Higher Interleaving Quiz

Branch 10 Quiz 2

- 3) Find the length of side x . (5 marks)



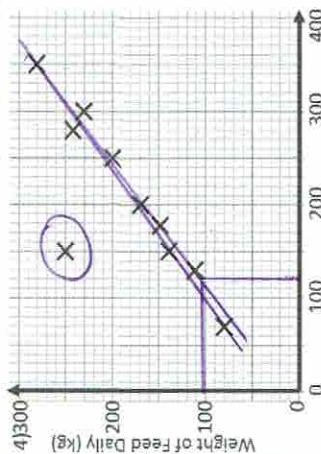
$$\cos(30) = \frac{y}{12}$$

$$y = 12 \times \cos(30) = 10.39$$

$$\frac{x}{\sin(80)} = \frac{10.39}{\sin(50)}$$

$$x = \frac{10.39}{\sin(50)} \times \sin(80) = 13.257$$

Answer: 13.257



- a) Circle the result that is an anomaly. (1 mark)

- b) James has 120 cows. Estimate how much feed he will need to buy each week. (2 marks)

$$100 \text{ kg} + 100 \text{ kg}$$

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Higher Interleaving Quiz

Branch 10 Quiz 3

- 1) Express $0.\dot{1}\dot{6}$ as a fraction in its simplest form. (2 marks)

$$x = 0.\dot{1}\dot{6}1616$$

$$100x = 16.\dot{1}\dot{6}16$$

$$99x = 16$$

$$x = \frac{16}{99}$$

Answer: $\frac{16}{99}$

- 2) Simplify (4 marks)

$$\frac{x+3}{3x} \div \frac{x^2-9}{2x^2}$$

$$\frac{(x+3)}{3x} \times \frac{2x^2}{(x^2-9)} = \frac{2x^2(x+3)}{3x(x^2-9)}$$

$$= \frac{2x(x+3)}{3(x^2-9)} \leftarrow \text{diff}$$

$$= \frac{2x(x+3)}{3(x+3)(x-3)}$$

$$= \frac{2x}{3(x-3)}$$

$$= \frac{2x}{3(x-3)}$$

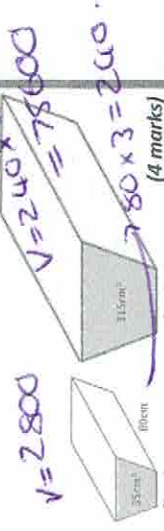
Answer: $\frac{2x}{3(x-3)}$



Higher Interleaving Quiz

Branch 10 Quiz 3

- 3) Mr Moothan needs to calculate the volume of trough B. Both troughs are similar shapes. (4 marks)



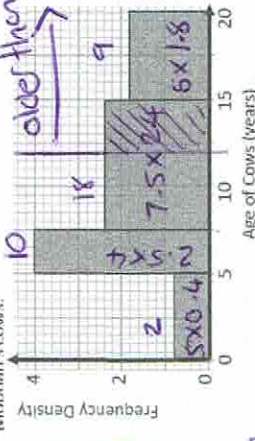
Scale factors
 $A = 315 \div 35 = 9$
 $L = \sqrt{9} = 3$

$$V = 3^3 = 27 \quad \text{Two methods}$$

$$V = 2800 \times 27 = 75600$$

Answer: 75600 cm³

- 4) The histogram below shows the age of some of Mr Moothan's cows.



- a) How many cows are there all together? (2 marks)

$$2 + 9 + 7.5 + 9 = 29$$

- b) How many cows are older than 12 years. (2 marks)

$$\text{Shaded} = 3 \times 2.4 = 7.2$$

Answer: 7.2 + 9 = 16.2 cows

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