

Answers 22/4/20

Higher Interleaving Quiz

Branch 6

Quizzes 1 to 3



Quiz 1

Q	Topic	Σ	R	A	G
1	Proportion				
2	Functions				
3	Perimeter of a Sector				
4	Scatter Graph				

Home Study Focus

Home Study Completed

Quiz 2

Q	Topic	Σ	R	A	G
1	Reverse Percentage				
2	Simultaneous Equations				
3	Trigonometry				
4	Probability Tree				

Home Study Focus

Home Study Completed

Quiz 3

Q	Topic	Σ	R	A	G
1	Ratio Problem				
2	Regional Inequalities				
3	Circle Theorem				
4	Averages from a Table				

Home Study Focus

Home Study Completed



Higher Interleaving Quiz

Branch 6 Quiz 1

T/D

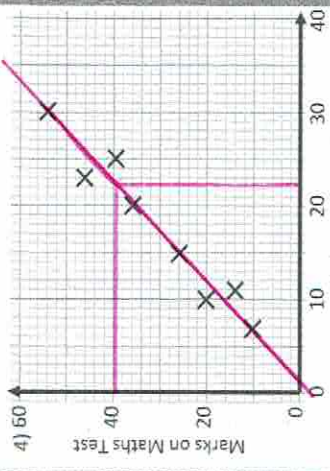
- To complete a task in 9 days a company needs 5 people each working 8 hours per day. The company instead decides to have 6 people working 5 hours per day. Assume that each person works at the same rate.
 - How many days will the task take to complete? $40 \times 9 = 360 \text{ hrs}$
 $5 \times 8 = 40 \text{ hrs}$
 $6 \times 5 = 30 \text{ hrs}$
 $360 \div 30 = 12 \text{ days}$
Answer: 12
 - Comment on how the assumption affects your answer to part (a).
Some people might work quicker so it takes less time.

(3 marks)

- The functions $f(x)$ and $g(x)$ are given by the following:
 $f(x) = 3x$
 $g(x) = 2x + 4$
 - Calculate the value of $g(f(5))$ (2 marks)
 $f(5) = 3 \times 5 = 15$
 $g(f(5)) = g(15) = 2(15) + 4$
Answer: 34
 - Solve the equation $f(g(x)) = 24$ (3 marks)
 $3(2x + 4) = 24$
 $6x + 12 = 24$
 $6x = 12$
 $x = 2$
Answer: $x = 2$



- OAB is a sector of a circle, centre O and radius 6 cm. Find the perimeter of the sector. Give your answer in terms of π . (3 marks)
 $120 = \frac{1}{3} \times 360$
 $\frac{1}{3} \pi \times 12 + 6 + 6$
 $= 4\pi + 12 \text{ cm}$
Answer: $4\pi + 12 \text{ cm}$



- Describe the relationship between the marks on the Science and Maths tests. (1 mark)
Positive Correlation.
- Mo was absent for the Maths test. He scored 22 marks on the Science test. Estimate Mo's Maths test score. (2 marks)
Higher score in science higher you score in Maths
LOBF Answer: 40 ± 1

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Higher Interleaving Quiz

Branch 6 Quiz 2

1) Ryan scored on a test 85%. He got 68 marks on the test. Work out the total number marks the test was out of. (3 marks)

$85\% \rightarrow 85\% = 68 \rightarrow 85$
 $100\% \rightarrow 100\% = 80 \rightarrow 100$

Answer: 80 marks

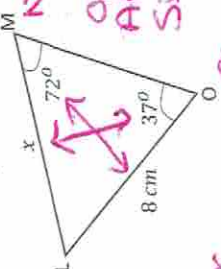
2) At a concert
 3 adult and 4 child tickets cost £39
 2 adult and 6 child tickets cost £41

Work out the cost of an adult ticket and the cost of a child ticket. (4 marks)

$3x + 4y = 39$ (x6)
 $2x + 6y = 41$ (x4)
 $18x + 24y = 234$
 $8x + 24y = 164$
 $10x = 70$ (3) (4)
 $x = 7$

Adult = £7 Child = £4.50 (3 marks)

3) Calculate the length of side LM. (3 marks)



$x = \frac{8}{\sin(37)} \sin(72)$

Answer: 5.06 cm

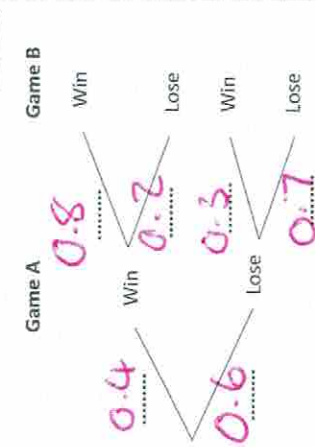
$x = \frac{8}{\sin(37)} \times \sin(72)$

Higher Interleaving Quiz

Branch 6 Quiz 2

4) Sarah takes part in two tennis matches. The probability of Sarah winning game A is 0.4. If Sarah wins game A, then the probability of her winning game B is 0.8. If Sarah loses game A, then the probability of her winning game B is 0.3.

a) Complete the probability tree diagram. (2 marks)



b) Sarah won just one game. Is it more likely she won game A or game B. You must show your working. (3 marks)

$P(A \cap B) = 0.4 \times 0.2 = 0.08$
 $P(L \cap W) = 0.6 \times 0.3 = 0.18$

Answer: Wining game B.

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Higher Interleaving Quiz

Branch 6 Quiz 3

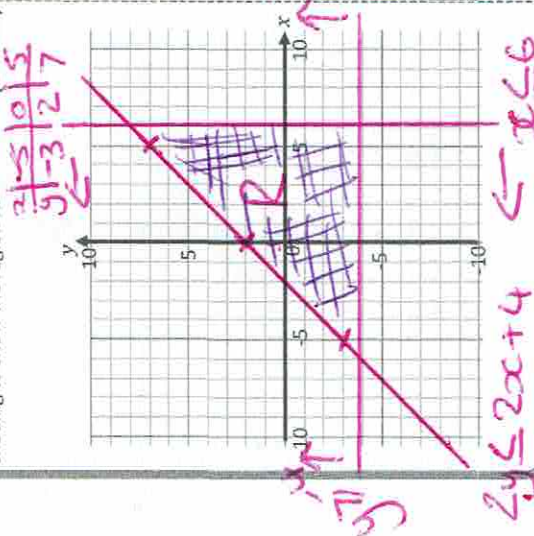
1) In a school, the ratio of the number of males to the number of females is 3:7. $\Rightarrow 30\% = 10\%$ 20% of the males are in KS3. What percentage of all the students in the school are in KS3? (3 marks)

$30 : 70$
 $20\% \text{ of } 30 = 6$
 $70\% \text{ of } 70 = 49$
 $6 : 49$
 $6 + 49 = 55\%$

Answer: 55%

2) The region R satisfies the inequalities $x \leq 6$, $y \geq -4$, $2y \leq 2x + 4$

On the grid below, draw straight lines and use shading to show the region R. (4 marks)



$2y \leq 2x + 4 \rightarrow x \leq 6$
 (0,0) Test.
 $2(0) \leq 2(0) + 4$ works.

Higher Interleaving Quiz

Branch 6 Quiz 3

3) A, B, C and D are points on the circumference of a circle, centre O.

Work out the size of angle ADC. You must give reasons for your working. (4 marks)

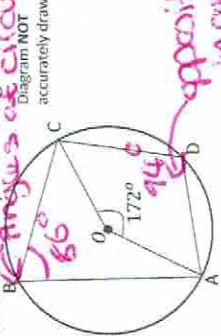


Diagram NOT accurately drawn.
 Opposite angles in cyclic quadrilateral.
 Answer: 94°

4) When visiting a health clinic patient heights were measured in centimetres.

Height (h) in cm	Frequency	MP	Fx
$110 < h \leq 150$	22	130	2860
$150 < h \leq 160$	36	155	5580
$160 < h \leq 170$	53	165	8745
$170 < h \leq 200$	39	185	7215
	150		24400

a) Write down the modal class interval. (1 mark)

Answer: $160 < h \leq 170$

b) Estimate the mean height of the patients. (3 marks)

Answer: $24400 \div 150 = 162.7 \text{ cm}$

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