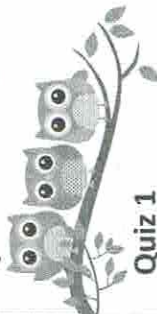


Higher Interleaving Quiz

Branch 9

Quizzes 1 to 3



Quiz 1

Q	Topic	Σ	R	A	G
1	Ratio Problem				
2	Inequalities				
3	Similar Shapes				
4	Probability Tree				

Home Study Focus

Home Study Completed

Quiz 2

Q	Topic	Σ	R	A	G
1	Compound Interest				
2	Simultaneous Equations				
3	Area Problem				
4	Averages from a Table				

Home Study Focus

Home Study Completed

Quiz 3

Q	Topic	Σ	R	A	G
1	Calculators Skills				
2	Algebraic Fractions				
3	Sectors				
4	Frequency Tree				

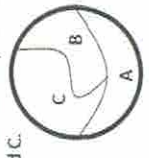
Home Study Completed



Higher Interleaving Quiz

Branch 9 Quiz 1

1) The diagram shows a circle split into three regions: A, B and C.



The ratio of the areas of the regions is 2:3:5.
The radius of the circle is 10cm.
Calculate the area of region A.

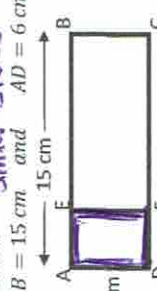
Area = $\pi \times r^2 = 100\pi$
 $\frac{100\pi}{10} = 10\pi$
 Each box

Answer: 20π

2) Solve $8 - \frac{1}{2}x \geq 5$

$8 - \frac{1}{2}x \geq 5$
 $3 \geq \frac{1}{2}x$
 $6 \geq x$
 Answer: $6 \leq x$

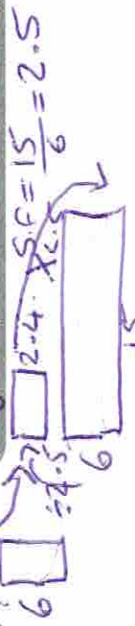
3) Rectangles ABCD is mathematically similar to rectangle DAEF. $AB = 15\text{ cm}$ and $AD = 6\text{ cm}$.



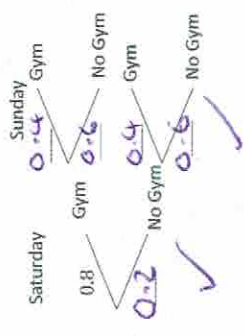
Work out the area of rectangle DAEF.

$6 \div 2.5 = 2.4\text{ cm}$
 $2.4 \times 6 = 14.4$

Answer: 14.4 cm^2



4) The probability that Ollie goes to the gym on a Saturday is 0.8.
The probability that Ollie goes to the gym on a Sunday is 0.4.



a) Complete the probability Tree (2 marks)

b) Calculate the probability Ollie goes to the gym on a Saturday and a Sunday. (1 mark)

$P(GG) = 0.8 \times 0.4 = 0.32$

Answer: 0.32

c) Calculate the probability Ollie goes to the gym on exactly one of these days. (3 marks)

$P(GN) = 0.8 \times 0.6 = 0.48$
 $P(NG) = 0.2 \times 0.4 = 0.08$

$0.48 + 0.08$

Answer: 0.56

Q	Topic	Σ	R	A	G
1	Ratio Problem				
2	Inequalities				
3	Similar Shapes				
4	Probability Tree				



Higher Interleaving Quiz

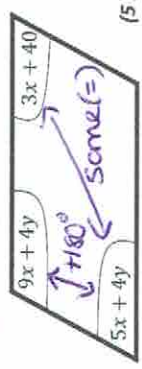
Branch 9 Quiz 2

1) There are 18 million pigeons in the UK when a histoplasmosis outbreak began. The population of pigeons decreases by 0.8% monthly during the outbreak for 5 months. How many pigeons are there now.

18 000 000 x 0.992⁵
= 17 291 428

Approx
Answer: 17 291 428

2) Below is a parallelogram. Find the values for x and y using an algebraic method.



(5 marks)

5x+4y = 3x+4y
-3x -3x
2x+4y = 40 (1) Double
9x+4y + 5x+4y = 180
14x + 8y = 180 (2)
-4x + 8y = 80 (3) (1)
10x = 100
x = 10

Sub In (1)
2x+4y = 40
2(10)+4y = 40
20+4y = 40
4y = 20
y = 5

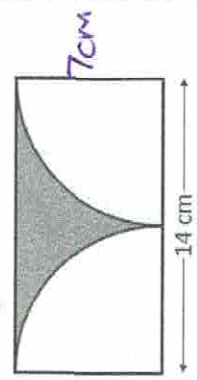
x = 10 y = 5



Higher Interleaving Quiz

Branch 9 Quiz 2

3) Two identical quarter circles are cut from a rectangle as shown.



Work out the shaded area. (5 marks)

$\pi \times 7^2 = 49\pi$
Semi circle = $49\pi \div 2 = 24.5\pi$
Rectangle = $14 \times 7 = 98\text{cm}^2$
Shaded = $98 - 24.5\pi$

Answer: 21.03cm²

4) There are 300 pigeons in a race. Estimate the mean

Time (t) in mins	Frequency	MP	Fxc
60 < t ≤ 120	80	90	7200
120 < t ≤ 180	120	150	18000
180 < t ≤ 540	100	360	36000
t > 540	0	0	0
	300		61200

MEAN = $61200 \div 300 = 204$ mins

Q	Topic	Σ	R	A	G
1	Compound Interest				
2	Simultaneous Equations				
3	Area Problem				
4	Averages from a Table				



Higher Interleaving Quiz

Branch 9 Quiz 3

1) Millie says an approximate solution or the following calculation is 4.3. Use your calculator to show that this approximation is within 0.1.

$1 + (\frac{2}{3} + \frac{5}{6} + \frac{8}{9} + \frac{11}{12})$ (2 marks)
= 155/36 = 4.305
= 4.305555...
= 4.3
= 0.005555
less than 0.1

Answer: Yes it is with 0.1.

2) Simplify

$\frac{x-3}{2x} + \frac{3x-9}{4x^2}$ (4 marks)
 $(x-3) \times \frac{2x}{(3x-9)}$
 $= \frac{2x}{4x^2(x-9)}$
 $= \frac{2x(3x-9)}{2x^2(x-9)}$
 $= \frac{2x^2(x-9)}{3x(x-9)}$
 $= \frac{2x^2}{3x} = \frac{2x}{3}$

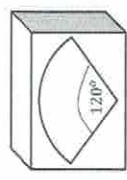
Answer: 2x/3



Higher Interleaving Quiz

Branch 9 Quiz 3

3) Charlie the carpenter cuts a hole out of a box to enable his racing pigeons to get inside. What is the radius of the sides of the hole, if he needs the arc length to be 18.5cm. (4 marks)

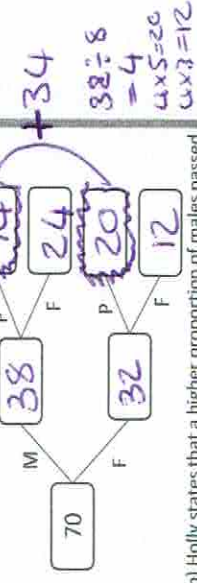


Arc length = $\frac{120}{360} \times \pi \times D = 18.5$
 $\frac{1}{3} \pi D = 18.5$
 $\frac{\pi D}{3} = \frac{55.5}{\pi}$
 $D = 17.67\text{cm}$

Answer:

4) A time trail for pigeons taking place. 70 pigeons were in the race. 32 pigeons were female. Females passed and failed in the ratio of 5:3. 34 pigeons passed in total. (3 marks)

a) Complete the frequency tree.



b) Holly states that a higher proportion of males passed the test to females. Is she correct? Yes/No (2 marks) Give reason for your answer.

$\frac{14}{38} = 36.8\%$
 $\frac{20}{32} = 62.5\%$
Male Passed. Female Passed.

Q	Topic	Σ	R	A	G
1	Calculator Skills				
2	Algebraic Fractions				
3	Sectors				
4	Frequency Tree				