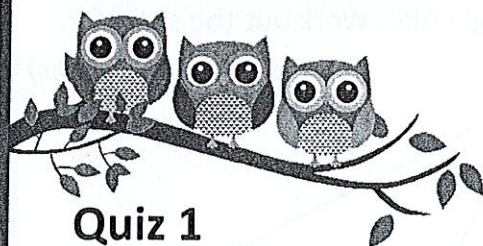


# Foundation Interleaving Quiz

## Branch 3

### Quizzes 1 to 3

Answers



#### Quiz 1

Q	Topic	$\Sigma$	R	A	G
1	Fraction Problem				
2	Function Machines				
3	Angle Problem				
4	Probability				

#### Home Study Focus

Home Study  
Completed

☐

#### Quiz 2

Q	Topic	$\Sigma$	R	A	G
1	Ratio Problem				
2	Solve Equations				
3	Circles				
4	Mean from a Table				

#### Home Study Focus

Home Study  
Completed

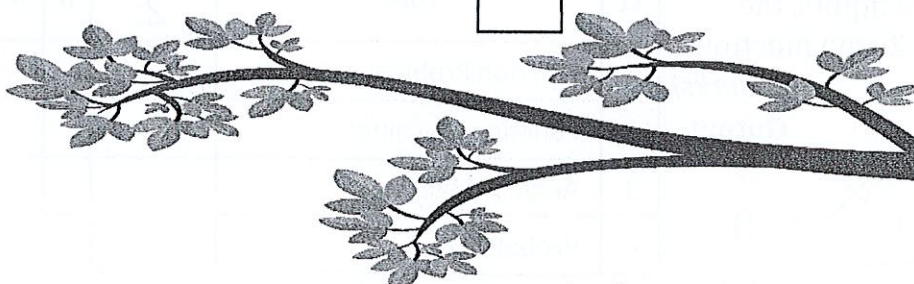
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#### Quiz 3

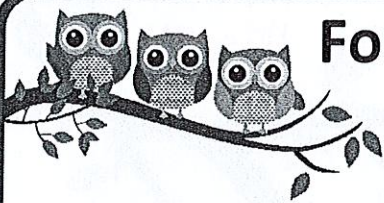
Q	Topic	$\Sigma$	R	A	G
1	Percentage Problem				
2	Expand and Simplify				
3	Pythagoras' Theorem				
4	Frequency Tree				

#### Home Study Focus

Home Study  
Completed

☐






# Foundation Interleaving Quiz



## Branch 3 Quiz 1

- 1) 60 girls and 140 boys were asked if they walk to school.

Altogether  $\frac{3}{4}$  of the students said yes.

$\frac{2}{3}$  of the girls said yes.

What fraction of the boys said yes? (4 marks)

$$\boxed{20 \quad 20 \quad 20}$$

$$60 \div 3 = 20$$

40 girls said yes ✓

$$60 + 140 = 200$$

$$\frac{3}{4} \text{ of } 200 \quad 200 \div 4 = 50$$

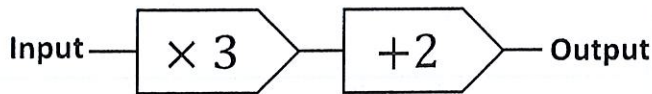
$$50 \times 3 = 150 \text{ yes}$$

$$150 - 40 = 110 \text{ students (left who said yes (boys))}$$

Answer:

$$\frac{110}{140} = \frac{11}{14}$$

- 2) Below is a function machine



- a) What is the output when the input is  $\frac{1}{2}$ ?

$$(3 \times \frac{1}{2}) + 2$$

$$= 1.5 + 2$$

(1 mark)

Answer: 3.5 ✓

- b) What is the input when the output is -4?

$$(-4 - 2) \div 3$$

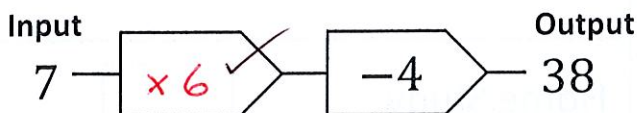
$$= -6 \div 3$$

(1 mark)

Answer: -2 ✓

- c) Complete the empty box in the function machine below.

(1 mark)

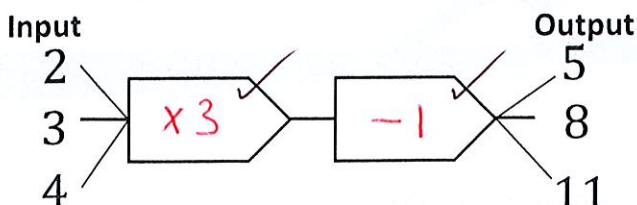


$$42 \div 6 = 7$$

$$42$$

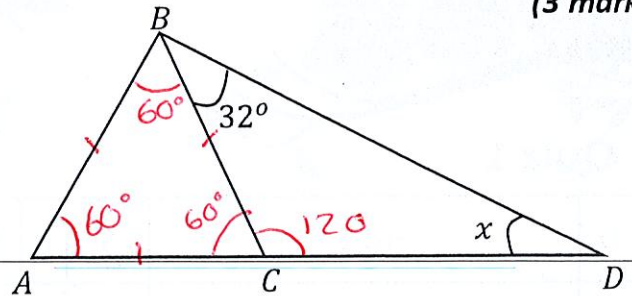
- d) When the numbers 2, 3, 4 are inputs, the outputs are 5, 8, 11. Create a 2 step function machine for this.

(2 marks)



- 3) The diagram shows a triangle ABD and an equilateral triangle ABC. Work out the size of  $x$ .

(3 marks)



$$180 - 60 = 120$$

$$180 - (120 + 32)$$

$$= 180 - 152$$

$$= 28^\circ$$

Answer:

$$x = 28^\circ$$

- 4) There are only red, green, yellow and blue counters in a bag.

Colour	Red	Green	Yellow	Blue
Probability	0.3		0.15	0.5

- a) Work out the probability of selecting a green counter.

$$0.3 + 0.15 + 0.5 = 0.95$$

$$1 - 0.95$$

Answer:

$$0.05$$

- b) There are 150 counters in the bag.

Work out the number of red counters in the bag.

(2 marks)

$$150 \times 0.3 = 45$$

30 out of 100

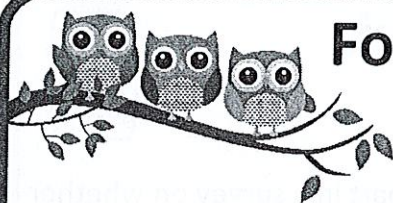
15 out of 50

Answer:

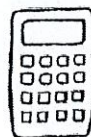
$$45$$

Q	Topic	$\Sigma$	R	A	G
1	Fraction Problem				
2	Function Machines				
3	Angle Problem				
4	Probability				





# Foundation Interleaving Quiz



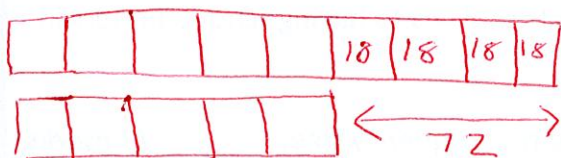
## Branch 3 Quiz 2

- 1) In year 11 at school the ratio of girls: boys = 5:9

There are 72 more boys than girls.

Work out the total number of students in year 11.

(3 marks)



$$72 \div 4 = 18 \checkmark$$

$$5 + 9 = 14$$

$$18 \times 14 = 252$$



Answer: 252 ✓

- 2) Solve

a)  $2x + 7 = 18$

(2 marks)

$$\begin{array}{r} -7 \quad -7 \\ 2x + 7 = 18 \\ \hline 2x = 11 \\ \hline x = 5.5 \end{array} \checkmark$$

Answer:  $x = 5.5$  ✓

b)  $\frac{x}{4} - 5 = -7$

(2 marks)

$$\begin{array}{r} +5 \quad +5 \\ \frac{x}{4} - 5 = -7 \\ \hline \frac{x}{4} = -2 \\ \hline x = -8 \end{array} \checkmark$$

Answer:  $x = -8$  ✓

c)  $3x^2 = 12$

(2 marks)

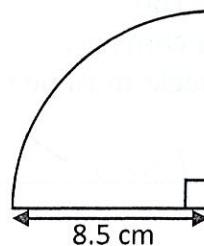
$$\begin{array}{r} \frac{3x^2}{3} = \frac{12}{3} \\ \hline x^2 = 4 \end{array} \checkmark$$

$$x = \pm\sqrt{4} = \pm 2$$

Answer:  $x = \pm 2$  ✓

- 3) The diagram shows a quarter-circle with a radius of 8.5 cm. Work out the area of the quarter circle.

(3 marks)



$$\begin{aligned} A &= \pi r^2 \\ &= \pi \times 8.5^2 \\ &= 226.98 \dots \end{aligned}$$



$$\text{Quarter} = \frac{\pi \times 8.5^2}{4}$$

$$= 56.75$$

Answer: 56.75 cm<sup>2</sup>

- 4) The table shows information about the marks of 40 students in a test.

(3 marks)

Mark	Frequency	$f \times x$
21	4	84
22	11	242
23	6	138
24	14	336
25	5	125

Students who scored less than the mean mark have to retake the test.

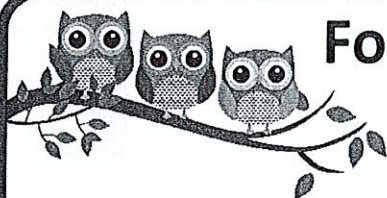
How many students have to retake the test?

$$\frac{925}{40} = 23.125 \checkmark$$

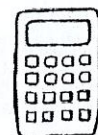
Answer: 21 ✓

Q	Topic	$\Sigma$	R	A	G
1	Ratio Problem				
2	Solve Equations				
3	Circles				
4	Mean from a Table				





# Foundation Interleaving Quiz



## Branch 3 Quiz 3

- 1) Jack wants to buy a new smart phone for £495. He has already saved £108. Each week he earns £60. He saves 40% of his earnings. How many more weeks must he save for?

(4 marks)

$$495 - 108 = 387$$

$$40\% \text{ of } 60 \quad 0.4 \times 60 = 24$$

$$387 \div 24 = 16.125$$

Answer: 17 weeks

- 2) a) Show that

(2 marks)

$$5(a - 4) - 2(a - 6) = 3a - 8$$

$$= 5a - 20 - 2a + 12$$

$$= 3a - 8$$

- b) Expand and simplify

(2 marks)

$$(x + 3)(x - 7)$$

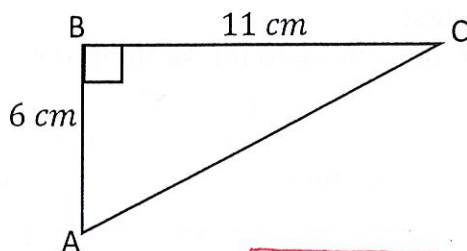
$$\begin{array}{r|rr} & x & -7 \\ \hline x & x^2 & -7x \\ +3 & +3x & -21 \end{array}$$

$$x^2 - 7x + 3x - 21$$

Answer:  $x^2 - 4x - 21$

- 3) Calculate the length of the side AC.

Give your answer to 1 decimal place. (2 marks)



$$AC = \sqrt{6^2 + 11^2}$$

$$AC = \sqrt{36 + 121} = \sqrt{157}$$

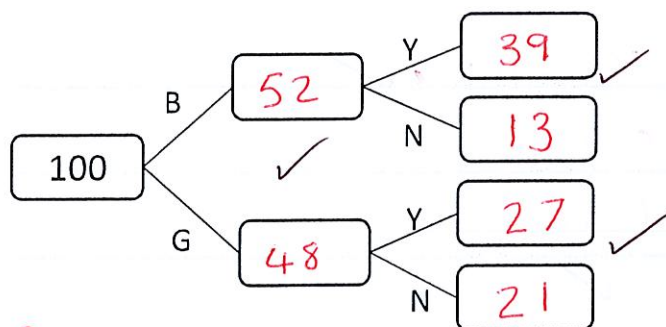
$$AC = 12.5$$

Answer: 12.5 cm

- 4) 100 students in took part in a survey on whether they have school dinners or not. 48 students were girls. Boys said yes and no to having school dinners in the ratio of 3:1. 66 students said yes to having school dinners in total.

- a) Complete the frequency tree.

(3 marks)



Boys

$$\begin{array}{l} Y \quad [13 \mid 13 \mid 13] \\ N \quad [13] \end{array} \quad \begin{array}{l} \uparrow \\ 52 \end{array}$$

$$52 \div 4$$

$$66 - 39 = 27$$

$$48 - 27 = 21$$

- b) What proportion of the students have school dinners?

(2 marks)

$$66$$

$$\frac{66}{100}$$

Answer: 66%

Q	Topic	$\Sigma$	R	A	G
1	Percentage Problem				
2	Expand and Simplify				
3	Pythagoras' Theorem				
4	Frequency Tree				