Answers 24/4 DAB

Higher Interleaving Quiz

Branch 8

Quizzes 1 to 3

Quiz 1

Q	Topic	∑	R	A	G
1	Proportion Problem				
2	Difference of two squares				
3	Transformation Graph				
4	Cumulative Frequency				

Home Study Focus

Home Study Completed ☐

Quiz 2

Q	Topic	∑	R	A	G
1	Reverse Percentage				
2	Iteration				
3	Trigonometry				
4	Averages from a Table				

Home Study Focus

Home Study Completed ☐

Quiz 3

Q	Topic	∑	R	A	G
1	Recurring Decimals				
2	Inequalities				
3	Similar Shapes				
4	Venn Diagrams				

Home Study Focus

Home Study Completed ☐

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Higher Interleaving Quiz

Branch 8 Quiz 1

1) A farm used 48 workers to plant carrots in a field. The field measured 60 acres and the work was completed in 20 days.
The farm is asked to prepare another field measuring 90 acres. This work has to be completed in 30 days.
Calculate the least number of workers the farm should employ for this work. ***(3 marks)***

48 × 20 = 960 days work.
60 acres
30 acres = 480 days
90 acres = 1440 days work
1440 ÷ 30 = 48 workers to complete in 30 days

Answer:

2) Simplify fully

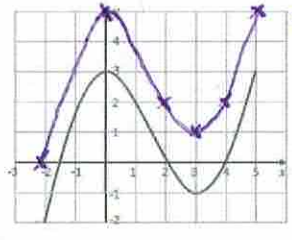
$$\frac{x^3 - 9x}{2x + 6} = \frac{x(x^2-9)}{2(x+3)}$$

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

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

Answer:

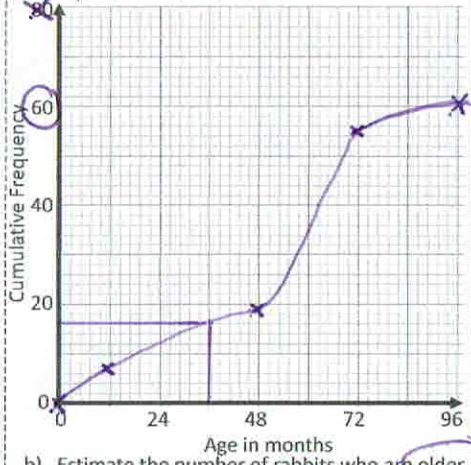
3) Here is the graph of the function $f(x)$.
Draw the graph $f(x) + 2$ ← up 2 in y direction



4) This frequency table gives information about the ages of 60 rabbits.

Age (A) in months	Frequency	CF	
$0 < A \leq 12$	7	7	
$12 < A \leq 48$	12	19	
$48 < A \leq 60$	23	42	
$60 < A \leq 72$	13	55	
$72 < A \leq 96$	5	60	

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



√points
√smooth curve.

b) Estimate the number of rabbits who are older than 36 months. ***(2 marks)***

60 − 16 = 44

Answer: 44 ± 2

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Higher Interleaving Quiz

Branch 8 Quiz 2

1) The population of bunny rabbits decreased by 12% due to an outbreak of myxomatosis. After the outbreak there were 1.32 million bunnies. How many were there before the outbreak. *(3 marks)*

0.88

88% = 1.32 million

1% = 0.015 million

100% = 1.5 million

Answer: 1.5 million

2) a) Show that $x^3 + 7x - 2 = 55$ has a solution between 3 and 4. *(2 marks)*

$x^3 + 7x - 57 = 0$

$f(3) = -9$ one +ive

$f(4) = 35$ one -ive

Solution between.

An approximate solution to an equation is found by using this iterative process. ← watch out cubed Root.

$X_n = \sqrt[3]{57 - 7X_n}$

And $X_0 = 3$ ans

b) Work out the values of X_1 and X_2. *(2 marks)*

$x_1 = 3.301927249$

$x_2 = 3.236003215$

X_1: 3.301927249

X_2: 3.236003215

c) Work out the solution to 3 decimal places. *(1 mark)*

$x_3 = 3.2506\ldots$

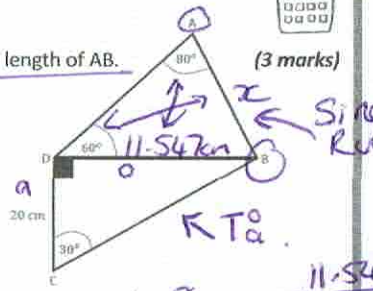
$x_4 = 3.24739\ldots$

$x_5 = 3.2481$ So. 3.248

Answer:

$x_6 = 3.2479\ldots$ ↑ Both Round to it x_5 and x_6.

3) Find the length of AB. *(3 marks)*



Sine Rule

∠T° a.

$\tan(30) = \frac{x}{20}$

$x = 20 \times \tan(30)$

$x = 11.547\text{cm}$

$\frac{x}{\sin(60)} = \frac{11.547}{\sin(50)}$

$x = \frac{11.547}{\sin(80)} \times \sin(60)$

$x = 10.15\text{cm}$.

Answer: 10.15cm

4) Bunny rabbits hopped a race to decide which bunnies should be allowed to be the Easter Bunny. It was decided anyone below the mean average time would not be allowed to be an Easter bunny. Calculate the qualification time. *(4 marks)*

Time (t) in mins	Frequency	MP	Fx
$0 < t \leq 10$	8	5	40
$10 < t \leq 15$	15	12.5	187.5
$15 < t \leq 20$	17	17.5	297.5
$20 < t \leq 30$	0	25	0
			525

Mean. 40

$525 \div 40 = 13.125$ mins

13 mins and 7.5 seconds qualification time.

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Higher Interleaving Quiz

Branch 8 Quiz 3

1) Express $0.\dot{2}\dot{3}$ as a fraction in its simplest form. *(3 marks)*

Let $x = 0.232323\ldots$

$100x = 23.2323\ldots$

$99x = 23$

$x = 23/99$

Answer: 23/99

2) a) Solve $5x + 12 \geq 8$ *(2 marks)*

$-12 \quad -12$

$5x \geq -4$

$\frac{5}{5} \quad \frac{5}{5}$

Answer: $x \geq -4/5$

$x \geq -0.8$

b) Solve $14 - 2x < 23$ *(2 marks)*

$-14 \quad -14$

$-2x < 9$

$\frac{-2}{-2} \quad \frac{}{-2}$

$x > -4.5$

$14 - 2x < 23$

$+2x \quad +2x$

$14 < 2x + 23$

$-23 \quad -23$

$-9 < 2x$

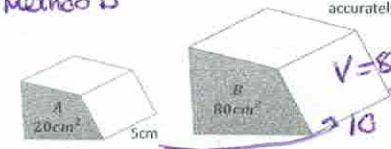
$\frac{-9}{2} < \frac{2x}{2}$

Answer: $-4.5 < x$

↑ Two different methods

3) Below are two bunny hutches. Calculate the volume of hutch B. *(5 marks)*

Diagram **NOT** accurately drawn



Method B

$V = 80 \times 10 = 800\text{cm}^3$

$\sqrt{4} = 2$

$A \frac{80}{20} = 4$

$V\ 2^3 = 8$

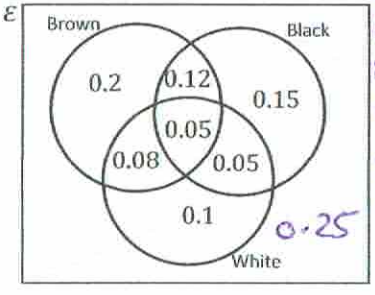
x2 Scale factors

Method A

Volume A = 20cm³

Volume B = 20 × 8 = 800cm³

Answer: 800cm³

4) 

Add to make 1? NO 0.75 So it's 0.25

The Venn Diagram shows some of the different colours of fur bunnies have.
A sample of 420 bunnies is taken. Calculate the proportion of the bunnies that do not have any brown, black or white fur.

105 bunnies. 1/4 or 25%

Answer:

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