

1) Answer: C

Explanation: To find the value of $(12 - 8)^2 \times 4 - 3$, we need to apply the proper order of operations or [PEMDAS](#).

Parenthesis: $(12 - 8)^2 \times 4 - 3$

$(4)^2 \times 4 - 3$

Exponent: $16 \times 4 - 3$

Multiplication/Division: $64 - 3$

Addition/Subtraction: 61

Therefore, the value of $(12 - 8)^2 \times 4 - 3$ is 61.

2) Answer: D

Explanation: We can interpret "47.5 is 25% of what number?" as "25% of a certain number is 47.5". In symbols, $25\% \times \underline{\hspace{2cm}} = 47.5$

In this case, we have 25% as the rate, 47.5 as the percentage, and the missing number as the base. This means that the unknown in this problem is the base.

The [formula for base is \$Base = Percentage \div Rate\$](#)

Thus, we have: $Base = 47.5 \div 0.25 = 190$

Therefore, the answer is 190.

3) Answer: B

Explanation: A number is divisible by 6 if and only if it is both an even number and divisible by 3. Note that a number is divisible by 3 if the sum of its digits is a multiple of 3.



Quantitative Reasoning Answer Key

Set 1: Arithmetic and Number Sense

Using these criteria, the only feasible answers for this problem are even numbers 270, 196, and 154. 543 is not a possible answer since it is an odd number.

To identify which among 270, 196, and 154 are divisible by 6, we simply add their digits and see who among them satisfies the [divisibility by 3](#) condition:

$$270 : 2 + 7 + 0 = 9$$

$$196: 1 + 9 + 6 = 16$$

$$154: 1 + 5 + 4 = 10$$

From our calculation above, it seems that 270 is the only one whose sum of digits is a multiple of 3. It follows that it is the only number that is both an even number and divisible by 3.

Since the condition for a number to be divisible by 6 is to be both an even number and divisible by 3, then 270 is the one that is divisible by 6.

4) Answer: A

Explanation:

To add $1\frac{2}{5}$ and $4\frac{1}{3}$, we add their respective whole number components to each other and their respective fractional parts to each other.

$$1\frac{2}{5} + 4\frac{1}{3}$$

Adding the whole number components:

$$1 + 4 = 5$$

Adding the fractional components:



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Quantitative Reasoning Answer Key

Set 1: Arithmetic and Number Sense

$$\frac{2}{5} + \frac{1}{3}$$

Note that we cannot add the fractions directly because they are dissimilar. Using their least common denominator (which is 15), we can transform them as similar fractions. To do this, we divide their LCD by their denominators and then multiply the result by their numerators. The resulting number becomes the new numerator.

For instance, to transform $\frac{2}{5}$, we divide the LCD (which is 15) by 5: $15 \div 5 = 3$ and then multiply the quotient by the numerator: $2 \times 3 = 6$. Hence, $\frac{2}{5}$ becomes $\frac{6}{15}$.

We do the same thing for $\frac{1}{3}$: $15 \div 3 = 5$, $5 \times 1 = 5$. Thus, $\frac{1}{3}$ becomes $\frac{5}{15}$.

Now, let us add $\frac{6}{15}$ and $\frac{5}{15}$. Since they are now similar fractions, we simply add their numerators and copy their common denominator.

$$\frac{6}{15} + \frac{5}{15} = \frac{11}{15}$$

Combining the resulting whole number and fractional components:

$$1\frac{2}{5} + 4\frac{1}{3} = 5\frac{11}{15}$$

Therefore, the final answer is $5\frac{11}{15}$

5) Answer: C

Explanation: Let us evaluate the value for each given option:



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Quantitative Reasoning Answer Key

Set 1:
Arithmetic and Number Sense

For A : 50% of 320 is simply $\frac{1}{2}$ of 320 or 320 divided by 2. Since $320 \div 2 = 160$, then 50% of 320 is 160.

For B: 75% of 100 is simply equal to $0.75 \times 100 = 75$.

For C: 100% of a number is simply the number itself. Therefore, 100% of 70 is 70.

For D: 25% of 420 is equal to $\frac{1}{4}$ of 420 or 420 divided by 4. Since $420 \div 4 = 105$, then 25% of 420 is 105.

From our computation above, the one in option C has the least value.

6) Answer: D

Explanation: The [reciprocal of a fraction](#) is obtained by reversing the positions of its numerator and denominator. Hence, the reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$.

To find the difference between $\frac{4}{3}$ and $\frac{3}{4}$, all we have to do is to subtract them:

$$\frac{4}{3} - \frac{3}{4}$$

Let us make the fractions similar using their least common denominator.

The multiples of 3 are: 3, 6, 9, 12, 15, and so on.

Meanwhile, the multiples of 4 are 4, 8, 12, 16, 20, and so on.

Note that 12 is a common multiple of both 3 and 4. Thus, the LCD is 12



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Quantitative Reasoning Answer Key

Set 1: Arithmetic and Number Sense

To transform the fractions into similar fractions, we divide their LCD by their denominators and then multiply the result by their numerators. The resulting number becomes the new numerator.

For instance, to transform $\frac{4}{3}$, we divide the LCD (which is 12) by 3: $12 \div 3 = 4$ and then multiply the quotient by the numerator: $4 \times 4 = 16$. Hence, $\frac{4}{3}$ becomes $\frac{16}{12}$.

We do the same thing for $\frac{3}{4}$: $12 \div 4 = 3$, $3 \times 3 = 9$. Thus, $\frac{3}{4}$ becomes $\frac{9}{12}$.

Therefore, we have:

$$\frac{4}{3} - \frac{3}{4} = \frac{16}{12} - \frac{9}{12}$$

Subtracting the similar fractions (subtract the numerators then copy the common denominator):

$$\frac{16}{12} - \frac{9}{12} = \frac{7}{12}$$

Thus, the difference between $\frac{4}{3}$ and $\frac{3}{4}$ is $\frac{7}{12}$.

7) Answer: D

Explanation: To determine how many $\frac{2}{5}$'s there are in 250, we have to divide 250 by $\frac{2}{5}$.

Note that to [divide fractions](#), we change the operation to multiplication and then reciprocate the divisor.



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Quantitative Reasoning Answer Key

Set 1: Arithmetic and Number Sense

$$250 \div \frac{2}{5}$$

Changing the operation to multiplication and reciprocating the divisor (which is $\frac{2}{5}$):

$$250 \times \frac{5}{2}$$

We can express 250 as 250/1:

$$\frac{250}{1} \times \frac{5}{2}$$

250 and 2 has a common factor of 2, so we can cancel them:

$$125 \frac{\cancel{250}}{1} \times \frac{5}{\cancel{2}}$$

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$$\frac{125}{1} \times \frac{5}{1} = \frac{625}{1}$$

The resulting value is 625. Hence, there are 625 $\frac{2}{5}$'s in 250.

8) Answer: B

Explanation: We can answer the given question using the concept of [ratio and proportion](#).

Four slices of *buko* pie cost PHP 150. In ratio form, we can write it as 4 : 150.



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Quantitative Reasoning Answer Key

Set 1:
Arithmetic and Number Sense

Our task is to determine how much is twelve slices of *buko* pie. Let P be the price of twelve slices. Hence, in ratio form, we have 12 : P

The ratios 4 : 150 and 12 : P are equal ratios, so we have this proportion:

$$4 : 150 = 12 : P$$

In a proportion, the product of the extremes is equal to the product of the means. Thus, we have:

$$\begin{aligned} 12(150) &= 4(P) \\ 1800 &= 4P \end{aligned}$$

Dividing 1800 by 4 to solve for P:

$$\begin{aligned} P &= 1800 \div 4 = 450 \\ P &= 450 \end{aligned}$$

Thus, the price of four slices of *buko* pie is PHP 450.

9) Answer: D

Explanation: There are ten dozens of eggs in the container. A dozen eggs is equal to 12 eggs. Hence, ten dozens is equal to $10 \times 12 = 120$ eggs.

Selena took $\frac{1}{5}$ from ten dozens of eggs (or 120 eggs). $\frac{1}{5}$ of 120 implies [multiplication of fractions](#). Thus, $\frac{1}{5}$ of 120 is actually equal to $\frac{1}{5} \times 120$. So, the number of eggs that Selena took is:

$$\frac{1}{5} \times 120 = \frac{120}{5} = 24$$



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Quantitative Reasoning Answer Key

Set 1: Arithmetic and Number Sense

This means that $\frac{1}{5}$ of ten dozens of eggs is equal to 24 eggs. Hence, the number of eggs that Selena took from the container is 24 eggs

10) Answer: A

Explanation: $\frac{1}{5}$ of 120 can be computed by multiplying $\frac{1}{5}$ by 120. To do this, we multiply their respective numerators as well as their respective denominators and then simplify the result.

$$\frac{1}{5} \times \frac{120}{1} = \frac{120}{5} = 24$$

10) Answer: A

Explanation: $x\%$ of y also means $y\%$ of x . Therefore, 32% of 50 is equivalent to 50% of 32. Note that 50% of a number is equal to half of that number. So, 50% of 32 is equal to 16 because $32 \div 2 = 16$. Since we have mentioned earlier that 32% of 50 and 50% of 32 are equal, then 32% of 50 is equal to 16.



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