1) Answer: C
Explanation: By applying the <u>order of operations or PEMDAS</u>:

$(3 + -5)^2 - (-2) \times 3$	
$(2)^2 - (-2) \times 3$	*Parenthesis*
$4 - (-2) \times 3$	*Exponent*
$4 - (-6)$	*Multiplication*
10	*Subtraction*

Thus, the answer is 10.

2) Answer: B
Explanation: To compute for the half of 4/3, we divide this fraction by 2:

$$\frac{4}{3} \div 2$$

$$\frac{4}{3} \times \frac{1}{2}$$

$$\frac{4}{6} \ or \ \frac{2}{3}$$

Thus, half of 4/3 is ⅔

3) Answer: B
Explanation: The cost of 8 kg of tomatoes is PHP 82.00. In ratio form, we can write it as 8 : 82. Let us represent the price of 2 ½ kilograms of tomatoes as P. Therefore, we have the ratio 2 ½ : P.

Now, let us form the <u>proportion</u>:

$$8 : 82 \ = 2 ½ : P$$

To make our computation easier, let us rewrite 2 ½ into 2.5 (since ½ is equal to 0.5):

$$8 : 82 = 2.5 : P$$

In a proportion, the product of the means is equal to the product of the extremes:

$$8P = 82 \times 2.5$$
$$8P = 205$$

Dividing both sides of the equation by 8 to solve for P:

$$P = 205 \div 8$$
$$P = 25.625$$

Thus, the price of 2 ½ kilos of tomatoes is PHP 25.625.

4) Answer: C
Explanation: ⅕ of the sum of ⅔ and ¼ can be expressed as a mathematical sentence as shown below:

$$\frac{1}{5} \times (\frac{2}{3} + \frac{1}{4})$$

Let us start by adding the quantities inside the parentheses which are $\frac{2}{3} + \frac{1}{4}$. Since they are dissimilar fractions, we make them similar first using their Least Common Denominator (which is 12). To do this, we divide their LCD by their denominators then multiply the result by their numerator. The resulting number will be the new numerators of the fractions and their new denominators will be the LCD.

For instance, to transform ⅔, we divide 12 by its denominator (which is 3): 12 ÷ 3 = 4. Then, we multiply the result by the numerator: 4 x 2 = 8. Hence, ⅔ becomes 8/12.

**PMA Mathematics
Reviewer
Answer Key**

*Set 1:
Arithmetic and Number
Sense*

We do the same process to transform ¼: 12 ÷ 4 = 3 x 1 = 3. Thus, ¼ becomes 3/12.

Now, we can add the transformed fractions 8/12 and 3/12 by just adding their numerators and copying their common denominator: 8/12 + 3/12 = 11/12.

$$\frac{1}{5} \times (\frac{2}{3} + \frac{1}{4})$$

$$\frac{1}{5} \times (\frac{11}{12})$$

Now, let us multiply the sum to ⅕:

$$\frac{1}{5} \times \frac{11}{12} = \frac{11}{60}$$

Thus, the answer is 11/60.

5) Answer: D
Explanation: Let us apply the order of operations or PEMDAS to simplify the mathematical expression $(-\frac{3}{2})^2 \div (\frac{1}{4} - \frac{2}{4})$

$$(-\frac{3}{2})^2 \div (\frac{1}{4} - \frac{2}{4})$$

We start by computing for the expression inside the parentheses which is $\frac{1}{4} - \frac{2}{4}$. Since these fractions are similar (i.e. having the same denominator), we just subtract their numerators and then copy their common denominator ($\frac{1}{4} - \frac{2}{4} = -\frac{1}{4}$).

$(-\frac{3}{2})^2 \div (-\frac{1}{4})$ *Parenthesis*
$\frac{9}{4} \div -\frac{1}{4}$ *Exponent*

Note: $(-\frac{3}{2})^2$ is evaluated by applying the [power of the quotient rule](#). $(-\frac{3}{2})^2$ can be written as

$$\frac{-3^2}{2^2} = \frac{9}{4}$$

$$\frac{9}{4} \div -\frac{1}{4}$$

$$\frac{9}{4} \times -\frac{4}{1} = \frac{-36}{4} = -9$$

Therefore, the final answer is -9.

6) Answer: A
Explanation: The cost of a candy bar is PHP 14.50. This means that if Samantha bought 3 candy bars, the total cost of these bars is 14.50 x 3 = PHP 43.50. If Samantha paid the cashier PHP 100, then her change is PHP 100 - PHP 43.50 = PHP 56.50

7) Answer: B
Explanation: For every three families, *Kaagapay* gives 14 relief packs. We can express this in ratio form as 3 : 14. The question asks us how many packs will 27 families receive. Let *n* be the number of packs that 27 families will receive. With this, our second ratio will be *27 : n.*

To solve for *n*, we form this proportion:

3 : 14 = 27 : *n*

In a proportion, the product of the means is equal to the product of the extremes:

3(n) = 14(27)
3n = 378

**PMA Mathematics
Reviewer
Answer Key**

*Set 1:
Arithmetic and Number
Sense*

To solve for *n*, we divide 378 by 3:

$$n = 378 \div 3 = 126$$

Hence, 27 families will receive 126 relief packs from *Kaagapay.*

8) Answer: A
Explanation: In this problem, a given rope that is 24 meters long was divided into two parts in a ratio of 1 : 3. To determine the length of each part, we use a common factor that must be multiplied by each component of the ratio such that we obtain their actual measurements.

Let *f* be this common factor. This means that the lengths of each part are *f* (or 1*f*) and *3f*.

The original length of the rope is 24 meters. This implies that the sum of *f* and *3f* should be 24.

f + 3f = 24

Let us solve for *f*:

f + 3f = 24
4f = 24

Dividing both sides by 4:

4f/4 = 24/4
f = 6

Using the computed value of *f*, we can now identify the lengths of each portion of the rope. One part is *f* meters long. Since *f = 6*, then the first part is 6 meters. Meanwhile, the other part is *3f* meters long. Since *f = 6,* then the second part is *3(6)* = 18 meters.

Therefore, the lengths of the two parts of the rope are 6 meters and 18 meters.

9) Answer: D

Explanation: We need to determine 72% of 25. [Note that 72% of 25 is also equivalent to 25% of 72](#). We know that when obtaining the 25% of a number, we can just simply divide the given number by 4. Thus, let us divide 72 by 4:

$$72 \div 4 = 18$$

This means that 72% of 25 is 18. Therefore, 18 of the participants are physicists.

10) Answer: A

Explanation: To compute the value of (-45 x -23) ÷ (19 - 24), we need to apply the standard order of operations or PEMDAS.

P in PEMDAS stands for Parenthesis which means that we must prioritize the operations that are inside the parentheses, since there are two pairs of parentheses in our case, we have to do them simultaneously:

$$\textbf{(-45 x -23) ÷ (19 - 24)}$$
$$1035 \quad \div \quad -5$$

The remaining operation we have is division, so let us divide -1035 by -5. Since both numbers were negative, then we expect that our quotient is positive.

$$1035 \div -5 = -207$$

To conclude, the answer to this problem is -207.