Linear and Nonlinear Expressions Worksheets

Write each of the following statements as a mathematical expression. State whether or not the expression is linear or nonlinear.

1. One-third of the result of three times a number that is increased by 12

2. Five times the sum of one-half and a number

3. Three-fourths of a number multiplied by seven

4. The sum of a number and negative three, multiplied by the number

5. The square of the difference between a number and 10

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Write each of the following statements as a mathematical expression. State whether or not the expression is linear or nonlinear.

1. One-third of the result of three times a number that is increased by 12

Let x be a number; then, $\frac{1}{3}(3(x+12))$ is a linear expression.

2. Five times the sum of one-half and a number

Let x be a number; then, $5\left(\frac{1}{2}+x\right)$ is a linear expression.

3. Three-fourths of a number multiplied by seven

Let x be a number; then, $\frac{3}{4}x \cdot 7$ is a linear expression.

4. The sum of a number and negative three, multiplied by the number

Let x be a number; then, $(x+(-3))x$ is a nonlinear expression because $(x+(-3))x = x^2 - 3x$ after using the distributive property.

5. The square of the difference between a number and 10

Let x be a number; then, $(x-10)^2$ is a nonlinear expression because $(x-10)^2 = x^2 - 20x + 100$.

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