

## Properties of Real Numbers Assignment

Simplify the following expressions.

1)  $(2x - 3y + 4z) + (9x - 8y + 7z)$

2)  $(5m + 2n - 6) - (3m - 2n + 4)$

3) Subtract the quantity  $12a^2 - 8a + 4$  from the quantity  $12 - 7a^2$

4)  $12\left(\frac{1}{3}x - \frac{1}{4}y\right) - \left(\frac{2}{5}x + \frac{1}{2}y\right) + 6\left(\frac{3}{10}x - \frac{2}{3}y\right)$

5)  $(3m^2 + 9mn + 3n^2) - 6(2n^2 - 5m^2) + 2(12m^2 + 9mn - 3n^2)$

6)  $(7.4a - 2.3b + c) + 10(2.6a - 2.3b + 4.5c) - 3(a + b + c)$

7) Subtract four times the quantity  $2x + 5$  from three times the quantity  $7x - 8$

8) Multiply the quantity  $2x^2 - 8xy + 5y^3$  by  $(-5)$  and add that product to the quantity  $7x^2 - 8xy + 3y^2$

9) Subtract the quantity  $10x + 5y - 4z$  from the sum of the quantities  $7z + 3y - 10x$  and  $9x - 12y - z$

10) Subtract six times the quantity  $3a + 12b - 4c$  from eight times the sum of the quantities  $14a + 7c$  and  $5b - 12c$

## Properties of Real Numbers Assignment

Write an algebraic expression to the given verbal expression

- 1) the product of twice  $a$  and  $b$
- 2) twice the product of  $a$  and  $b$
- 3) two less than five times a number
- 4) twice a number increased by three times the number
- 5) the sum of 3 times  $a$  and  $b$
- 6) three times the sum of  $a$  and  $b$

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**Properties of Real Numbers** Assignment

Simplify the following expressions.

1)  $(2x - 3y + 4z) + (9x - 8y + 7z)$

$11x - 11y + 11z$

2)  $(5m + 2n - 6) - (3m - 2n + 4)$

$2m + 4n - 10$

3) Subtract the quantity  $12a^2 - 8a + 4$  from the quantity  $12 - 7a^2$

$(12 - 7a^2) - (12a^2 - 8a + 4)$

$-19a^2 + 8a + 8$

4)  $12\left(\frac{1}{3}x - \frac{1}{4}y\right) - \left(\frac{2}{5}x + \frac{1}{2}y\right) + 6\left(\frac{3}{10}x - \frac{2}{3}y\right)$

$4x - 3y - \frac{2}{5}x - \frac{1}{2}y + \frac{9}{5}x - 4y$

$\frac{20x - 2x + 9x}{5} + \frac{-6y - y - 8y}{2}$

$\frac{27}{5}x - \frac{15}{2}y$

5)  $(3m^2 + 9mn + 3n^2) - 6(2n^2 - 5m^2) + 2(12m^2 + 9mn - 3n^2)$

$3m^2 + 9mn + 3n^2 - 12n^2 + 30m^2 + 24m^2 + 18mn - 6n^2$

$57m^2 + 27mn - 15n^2$

6)  $(7.4a - 2.3b + c) + 10(2.6a - 2.3b + 4.5c) - 3(a + b + c)$

$7.4a - 2.3b + c + 26a - 23b + 45c - 3a - 3b - 3c$

$30.4a - 28.3b + 43c$

7) Subtract four times the quantity  $2x + 5$  from three times the quantity  $7x - 8$

$(7x - 8) - 4(2x + 5)$

$x - 28$

**Properties of Real Numbers** Assignment

8) Multiply the quantity  $2x^2 - 8xy + 5y^3$  by  $(-5)$  and add that product to the quantity  $7x^2 - 8xy + 3y^2$ .

$$-5(2x^2 - 8xy + 5y^3) + (7x^2 - 8xy + 3y^2)$$

$$-10x^2 + 8xy - 25y^3 + 7x^2 - 8xy + 3y^2$$

$$-3x^2 + 32xy - 25y^3 + 3y^2$$

9) Subtract the quantity  $10x + 5y - 4z$  from the sum of the quantities  $7z + 3y - 10x$  and  $9x - 12y - z$

$$(7z + 3y - 10x + 9x - 12y - z) - (10x + 5y - 4z)$$

$$7z + 3y - 10x + 9x - 12y - z - 10x - 5y + 4z$$

$$10z - 14y - 11x$$

10) Subtract six times the quantity  $3a + 12b - 4c$  from eight times the sum of the quantities  $14a + 7c$  and  $5b - 12c$

$$8(14a + 7c + 5b - 12c) - 6(3a + 12b - 4c)$$

$$112a + 56c + 40b - 96c - 18a - 72b + 24c$$

$$94a - 16c - 32b$$

**Write an algebraic expression to the given verbal expression**

1) the product of twice  $a$  and  $b$

$$2a \times b$$

2) twice the product of  $a$  and  $b$

$$2 \times (a \times b)$$

3) two less than five times a number

$$5n - 2$$

4) twice a number increased by three times the number

$$2n + 3n$$

5) the sum of 3 times  $a$  and  $b$

$$3a + b$$

6) three times the sum of  $a$  and  $b$

$$3(a + b)$$