

Simplify each.

$$1.) -2(4k^2 - 7k + 8) = -8k^2 + 14k - 16$$

$$2.) 4g(6g^3 + 5g - 8) = 24g^4 + 20g^2 - 32g$$

$$3.) \frac{5}{6} (15Q - 18)$$

$$\frac{5}{2} = \frac{25}{2} Q - 15$$

$$\frac{75}{6}$$

$$4.) -3cd^2(-6c^2d + cd^2 + 4d^3) = 18c^3d^3 - 3c^2d^4 - 12cd^5$$

$$5.) \frac{4}{7}c^3(21c - \frac{11}{1}) = 12c^4 - \frac{44}{7}c^3$$

Answers to HW #6:

15.) $7t - 28$

16.) $-2n + 12$

17.) $3m + 12$

18.) $b - 4/5$

19.) $-2x - 6$

20.) $4y + 6$

27.) $-x - 3$

28.) $-x + 3$

29.) $-3 - x$

30.) $-3 + x$

Section 1-7

Simplify.

$$4(x + 11)$$

The Distributive Property.



Key Concepts

Property

Distributive Property

For every real number a , b , and c .

$$a(b + c) = ab + ac \quad (b + c)a = ba + ca$$

$$a(b - c) = ab - ac \quad (b - c)a = ba - ca$$

Examples $5(20 + 6) = 5(20) + 5(6)$ $(20 + 6)5 = 20(5) + 6(5)$
 $9(30 - 2) = 9(30) - 9(2)$ $(30 - 2)9 = 30(9) - 2(9)$

Simplify each using the Distributive Property:

1. $3(7w - 5) = 21w - 15$

2. $-8(10 - 3c) = -80 + 24c$

3. $-(5k + 3) = -5k - 3$

4. $(2P + 5)7 = 14P + 35$

5. $\frac{1}{4}(\cancel{8}^2 + \cancel{36}^9) = 2a + 9$

6. $\frac{\cancel{7}^2}{\cancel{8}^3}(\cancel{12}^3 - \cancel{9}^3) = 14g - \frac{21}{2}$ $\frac{63}{6}$

7. $-6m(3m + 4) = -18m^2 - 24m$ 8. $6b^2(2b^3 + 7b) = 12b^5 + 42b^3$

9. $5xy(4x^2y - 6y^3) = 20x^3y^2 - 30xy^4$

Simplify each:

1. $7k \cdot 8k$ $56k^2$

4. $5w^1 \cdot w^3$ $5w^4$

2. $6c^2 \cdot 8c^4$ $48c^6$

5. $10a^5b \cdot 3a^4$ $30a^9b$

3. $2mx^2 \cdot 7m^2x^3$ $14m^3x^5$

Use this variable expression:

$$-14w^2 - 18wx + 4x^2 - 30$$

- How many terms are there? (4)

Terms are separated by addition or subtraction.

If variables and numbers are connected with multiplication and division they create a single term.

Use this variable expression:

$$-14w^2 - 18wx + 4x^2 - 30$$

- What do we call the numbers
-14, -18, and 4?

Coefficients

Use this variable expression:

$$-14w^2 - 18wx + 4x^2 - 30$$

- What do we call the number -30?

A constant

Term:

could be:

- just a number
- just a variable (with or without an exponent)
- the product of more than one variable
- the product of a number and a variable or variables.

Rearrange these terms so that like terms are grouped together.

$5k$
 $-43k$

$-kj$ $32jk$
 $0.55kj$ $k4j$

$-4j$
 j $144j$

$-3k^2$
 $3.7k^2$
 $15k^2$

$-51.9j^2$
 $144j^2$

kj^2

$4,896jk^2$
 $18k^2j$

$100j^2k^2$
 $-1.8k^2j^2$

Like Terms:

Terms that have both of the following conditions:

- Same variable(s)
- Same exponents on those variable(s)

- What doesn't matter?

the coefficient

& the order of variables

$2kj$
 $6jk$

Combining like terms:

Finding terms that are alike then adding and subtracting them using the coefficients so that there is only one term with each type of variable part.

Simplify.

$$\underline{\underline{9x^2}} - 4x + 7x - 3 + \underline{\underline{1x^2}} - 12$$

$$10x^2 - 3x - 15$$

Simplify each.

1. $4(x + 7) - 3(2x - 4) = 4x + 28 - 6x + 12$
 $= -2x + 40$

2. $5 - 4a(2a - 3) + 6a + 2a^2 - 9$

$= 5 - 8a^2 + 12a + 6a + 2a^2 - 9$
 $= -6a^2 + 18a - 4$

$$3. \quad \underline{2c^2} + \underline{\frac{4}{3}c} - \underline{5c^2} - 3 + \underline{\frac{3}{5}c} - 9$$

$$= -3c^2 + \frac{29}{15}c - 12$$

$$b. \quad \frac{4}{3} + \frac{3 \cdot 3}{5 \cdot 3}$$

$$\frac{20}{15} + \frac{9}{15}$$

$$4. \quad \frac{3}{8} - \frac{5}{8}(9m^3 + 12) - \frac{1}{4}m$$

$$\frac{3}{8} - \frac{15m}{2} - 10 - \frac{1}{4}m$$

$$= -\frac{31m}{4} - \frac{77}{8}$$

$$\frac{-15}{2} - \frac{1}{4}$$

$$-\frac{30}{4} - \frac{1}{4}$$

$$\frac{3}{8} - \frac{10 \cdot 8}{1 \cdot 8}$$

$$\frac{3}{8} - \frac{80}{8}$$

5. $\underline{-6a^2b} + \underline{ab^2} - \underline{4b^2a} + 7ab - \underline{2a^2b} - \underline{5ab^2}$

$$-8a^2b - 8ab^2 + 7ab$$

HW #7: pg. 50 #21-26, 35-42

IXLs assigned: A.8 & I.7