

Name: _____ Date: _____

Polynomial Extra Review #2

To Add and Subtract Polynomials:

- combine like terms (same variable and same exponent)
- add/subtract coefficients
- keep the base and do not change the exponents
- write all answers in standard form

*Standard form is when terms are written in order from greatest exponent to least exponent.

1. What is the sum of $(8x^4 + 9x^2 - 7)$ and $(12x^3 - 6x^2 + 8)$?

2. Subtract $(14x^3 + 8x^2 - 9)$ from $(10x^3 - 4x^2 + 8x + 2)$.

3. What is the perimeter of a square if one side is represented by $7x + 3$?

To Multiply Monomials and Polynomials:

- distribute by multiplying the coefficients
- add the exponents of the like bases

4. What is the product of $-3x^2$ and $(7x^2 - 8x + 1)$?

5. Distribute: $4x^3yz^4(-2xy^2z + 9x^2y - 3xyz)$

6. What is the product of $(x - 8)$ and $(x + 2)$?

7. Write the following as a trinomial: $(2x - 3)^2$

To Divide Monomials and Polynomials:

- if it applies, rewrite each term of the polynomial divided by the monomial
- divide the coefficients
- subtract the exponents of the like bases

8. Divide: $\frac{14m^2n^6p^0}{7mn^3p^2}$

9. Simplify the following: $\frac{10x^2y^9 + 25x^3y^8 - 5x^2y}{5x^2y}$

10. If the area of a rectangle is represented by $18d^9f^7g^{12}$, and the width is represented by $3d^4f^3g^6$, then what is the length represented by?

To Use the Power Rule:

- raise the coefficient to the power outside the parentheses
- raise each base with an exponent to that same power and multiply the exponents

11. Rewrite each of the following:

a) $(k^8)^3$

b) $(-4h^6)^2$

c) $(-3m^4n^7p)^5$

To Make a Negative Exponent Positive:

- Write its reciprocal (flip) and make the exponent positive

12. Rewrite the following using positive exponents:

a) s^{-5}

b) $(2m^4)^{-3}$

c) $-3x^{-8}$

To Simplify a Non-Zero Value with a Zero Exponent:

- any non-zero value raise to the zero exponent has a value of 1
- Negative exponents go in the denominator and make the exponent positive
- Positive exponents go in the numerator
- Coefficients always go in the numerator

13. Simplify each of the following:

a) $6x^0$

b) $\left(\frac{4}{9}y^3\right)^0 + \left(\frac{5}{6}\right)$

c) $\frac{14x^3y^8}{2x^5y^9}$

<p>14. The expression $(-2a^2b^3)(4ab^2)(6a^3b^2)$ is equivalent to</p> <p>15. Which expression is equivalent to $-3x(x-4) - 2x(x+3)$?</p>	<p>24. The expression $\frac{-32x^6}{4x^2}$, $x \neq 0$, is equivalent to</p> <p>(1) $8x^4$ (2) $-8x^4$ (3) $8x^6$ (4) $-8x^6$</p> <p>25. What is the simplified form of $3a^4b^2c^3$?</p> <p>(1) $\frac{81a^4c^3}{b^2}$ (3) $\frac{3a^4}{b^2c^3}$ (2) $\frac{81a^4}{b^2c^3}$ (4) $\frac{3a^4c^3}{b^2}$</p>
<p>16. $(4k^3)^2 = 16k^6$</p> <p>17. $(12g^4h^8)(-3g^7h^{12}) = -36g^{10}h^{20}$</p> <p>18. $(y-3)(y+?) = y^2 + 3y - 18$</p> <p>19. $\frac{4d^4e^5 - 2d^8e^7}{2d^3e^2} = 2d^3e^3 - d^7e^5$</p>	<p>26. What is the product of $2r^2 - 5$ and $3r$?</p> <p>(1) $6r^3 - 15r$ (2) $6r^2 - 15r$ (3) $6r^3 - 5$ (4) $6r^2 - 15$</p> <p>27. Which of the following is equal to $\frac{x^2y + y^2}{-y}$?</p> <p>(1) $-x^2 - y$ (2) $-x^2 + y^2$ (3) $x^2 + y$ (4) $x^2 + y^2$</p>
<p>21. What is the value of $4(xy)^0$</p> <p>(1) 1 (2) xy (3) 4 (4) 0</p> <p>22. The perimeter of a square is $40x + 12$. What is the length of one of its sides?</p>	<p>28. Which expression is equivalent to $x^{-1} \cdot y^2$</p> <p>(1) xy^2 (3) $\frac{x}{y^2}$ (2) $\frac{y^2}{x}$ (4) xy^{-2}</p> <p>29. $(-2x^2)^3 =$</p> <p>(1) $-2x^5$ (2) $-8x^5$ (3) $-8x^6$ (4) $-6x^5$</p>

<p>14. The expression $(-2a^2b^3)(4ab^2)(6a^3b^2)$ is equivalent to</p> <p>15. Which expression is equivalent to $-3x(x-4) - 2x(x+3)$?</p>	<p>Fill in the " ? " for each of the following to make the statements true.</p> <p>16. $(4k^3)^? = 16k^6$</p> <p>17. $(12g^4h^8)(-3g^?h^{12}) = -36g^{10}h^{20}$</p>
<p>18. $(y-3)(y+?) = y^2 + 3y - 18$</p> <p>19. $\frac{4d^4e^5 - 2d^8e^7}{2d^3e^2} = 2d^3e^3 - d^7e^5$</p>	<p>20. $(9x^2 + 8x + 2) + (3x^2 - 7x - 1) = 12x^2 + 1x^? + 1$</p> <p>21. What is the value of $4(xy)^0$</p> <p>(1) 1 (2) xy (3) 4 (4) 0</p> <p>22. The perimeter of a square is $40x + 12$. What is the length of one of its sides?</p>
<p>23. The length of a rectangle is $(2j + 5)$ ft. & the width is represented by $(j - 3)$ ft. Find:</p> <p>a) the perimeter of the triangle b) the area, in square feet, of the rectangle</p>	<p>28. Which expression is equivalent to $x^{-1} \cdot y^2$</p> <p>(1) xy^2 (3) $\frac{x}{y^2}$ (2) $\frac{y^2}{x}$ (4) xy^{-2}</p> <p>29. $(-2x^2)^3 =$</p> <p>(1) $-2x^5$ (2) $-8x^5$ (3) $-8x^6$ (4) $-6x^5$</p>

<p>30. For a photo at a family reunion, $8gh$ people arranged in 4h rows, with an equal number of people in each row. Which expression represents the number of people in one row of the photograph?</p> <p>(1) $2g$ (2) $4g$ (3) $12gh^2$ (4) $32gh^2$</p>	<p>31. Which expression represents $\frac{(2x^3)(8x^5)}{4x^6}$</p> <p>(1) x^2 (2) $4x^2$ (3) $4x^9$ (4) $4x^{21}$</p>
<p>32. A pizza shop owner is monitoring the amount of cheese he uses each week. The polynomials below model the pounds of cheese ordered in the past, where p represents pounds.</p> <p>Mozzarella: $3p^3 - 6p^2 + 14p + 125$ Cheddar: $12.5p^2 + 18p + 75$</p> <p>Write a polynomial that models the total number of pounds of cheese ordered.</p>	<p>33. The length of a rectangle is $(4x + 5)$ and the width of a rectangle is $(x + 1)$.</p> <p>a) Find the perimeter of the rectangle. b) Find the area of the rectangle</p>

<p>34. Kelly simplified $(x + 2)^2$ and got $x^2 + 4$. EXPLAIN Kelly's mistake and give the correct answer.</p>	<p>35. $(5x^2 - 7x - 4) + (2x^2 + 9x + 7) + (-8x^2 - 2x - 9)$</p>	<p>36. Subtract: $(4x + y - 3) - (6x - 3y + 1)$</p>
<p>37. Simplify: $6a(a^2 + 4a - 2) - 3a$</p>	<p>38. Simplify: $-20 - (7m - 6)$</p>	<p>39. Multiply: a) $(2x - 3)(x + 4)$ b) $(x - 6)^2$</p>
<p>40. Subtract $(5y^2 - 8y + 3)$ from $(7y^2 - 3y - 4)$</p>	<p>41. Multiply the following by its conjugate and express answer in standard form. a) $(5 - m)$ b) $\frac{9x^2y - 12xy^2}{xy}$</p>	<p>42. Divide: a) $\frac{a + abc}{a}$ b) $\frac{9x^2y - 12xy^2}{xy}$</p>

<p>43. Express in standard form: $5x - x^2 + 3 + x^7$</p> <p>Degree of above polynomial :</p>	<p>44. What is the value of $5^0 + 6^{-2}$?</p>
<p>45. Simplify:</p> <p>a) $(-3x^5)^2$</p> <p>b) $(2x^2y^3)^4$</p> <p>c) 5^{-3}</p> <p>d) $6(3^{-3})$</p> <p>e) $(-2x)^0$</p> <p>f) $-2x^0$</p>	<p>46. If the expression $(2y^6)^4$ is equivalent to $16y^8$, what is the value of a ?</p>
<p>47. Simplify:</p> <p>a) $(2x^2 - 4x + 1) - 2(x^2 - 3x + 2)$</p> <p>b) $(6d^8)(-8d^9)(6d)$</p>	<p>48. Simplify the expressions below:</p> <p>a) $\frac{(4x^3)^2}{2x}$</p> <p>b) $5c^{-3}d^{-6}e^2 \cdot -2c^4d^2e^{-2}$</p> <p>c) $\frac{a^2b^3c^5}{a^5b^2c^5}$</p> <p>d) $\frac{-30x^2y^{-5}z^4}{15x^5y^4z^2}$</p>
<p>49. For a square whose side is $(x - 5)$ feet, find the:</p> <p>a) perimeter</p> <p>b) area</p>	<p>50. The side of a hexagon (6 sides) is represented by $4x - 3$. How would you represent the perimeter of the hexagon in terms of x?</p>

<p>51. The lengths of the sides of a triangle are $x - y$, $x + y$, and $3x - y$. Find the perimeter of the triangle in terms of x and y.</p>	<p>52. The area of a rectangle is $10x^2 - 20x$. Find the width given the length is $5x$.</p>
<p>53. The perimeter of a rectangle is represented by $24x - 8$. If the length is represented by $3x + 5$, how would you represent the width in terms of x?</p>	<p>54. Suppose you have been given this polynomial: $5b + 4b^2 - 3b^4 + 3$</p> <p>a. How can you write this polynomial in standard form?</p> <p>b. What is the degree of the polynomial?</p>
<p>55. Describe and correct the error made in simplifying the product</p> $\frac{(2x+7)(2x-7)}{= 4x^2 - 28x - 49}$	

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- add/subtract coefficients
- keep the base and do not change the exponents
- write all answers in standard form

*Standard form is when terms are written in order from greatest exponent to least exponent.

1. What is the sum of $(8x^4 + 9x^3 - 7)$ and $(12x^3 - 6x^2 + 8)$? $8x^4 + 9x^3 - 7 + 12x^3 - 6x^2 + 8$

$$\begin{array}{r} 8x^4 + 12x^3 + 3x^2 + 1 \\ + \quad 12x^3 - 6x^2 + 8 \\ \hline 8x^4 + 24x^3 - 3x^2 + 9 \end{array}$$
2. Subtract $(14x^3 + 8x^2 - 9)$ from $(10x^3 - 4x^2 + 8x + 2)$.

$$\begin{array}{r} 10x^3 - 4x^2 + 8x + 2 \\ - (14x^3 + 8x^2 - 9) \\ \hline -4x^3 - 12x^2 + 8x + 11 \end{array}$$

3. What is the perimeter of a square if one side is represented by $7x + 3$?

$$4(7x + 3) = 28x + 12$$

To Multiply Monomials and Polynomials:

- distribute by multiplying the coefficients
- add the exponents of the like bases

4. What is the product of $-3x^2$ and $(7x^2 - 8x + 1)$?

$$-3x^2(7x^2 - 8x + 1) = -21x^4 + 24x^3 - 3x^2$$

5. Distribute: $4x^3yz^2(-2xy^2z + 9x^2y - 3xyz)$

$$-8x^4y^3z^3 + 36x^5y^2z^2 - 12x^3y^2z^3$$

6. What is the product of $(x - 8)$ and $(x + 2)$?

$$\begin{array}{r} (x - 8)(x + 2) \\ x^2 + 2x - 8x - 16 \\ \hline x^2 - 6x - 16 \end{array}$$

7. Write the following as a trinomial: $(2x - 3)^2$

$$\begin{array}{r} (2x - 3)(2x - 3) \\ 4x^2 - 6x - 6x + 9 \\ \hline 4x^2 - 12x + 9 \end{array}$$

To Divide Monomials and Polynomials:

- if it applies, rewrite each term of the polynomial divided by the monomial
- divide the coefficients
- subtract the exponents of the like bases

8. Divide: $\frac{14m^5n^6p^{10}}{7mn^3p^2} = 2m^4n^3p^8$

9. Simplify the following: $\frac{10x^3y^9 + 25x^3y^8 - 5x^3y}{5x^3y} = \frac{10x^3y^9}{5x^3y} + \frac{25x^3y^8}{5x^3y} - \frac{5x^3y}{5x^3y} = 2y^8 + 5y^7 - 1$

10. If the area of a rectangle is represented by $18d^2fg^{12}$, and the width is represented by $3d^2fg^6$, then what is the length represented by?

$$A = L \times W \implies L = \frac{18d^2fg^{12}}{3d^2fg^6} = 6d^0f^0g^6 = 6g^6$$

To Use the Power Rule:

- raise the coefficient to the power outside the parentheses
- raise each base with an exponent to that same power and multiply the exponents

11. Rewrite each of the following:

a) $(k^3)^4$ OR $(k^4)(k^3)(k^3)(k^3)$

$$\boxed{k^{12}}$$

b) $(-4h^2)^3$ OR $(-4h^2)(-4h^2)(-4h^2)$ c) $(-3m^4n^2p)^5$

$$\boxed{(-4)^3(h^2)^3} = \boxed{-64h^6}$$

$$\boxed{(-3)^5(m^4)^5(n^2)^5(p)^5} = \boxed{-243m^{20}n^{10}p^5}$$

To Make a Negative Exponent Positive: $(-3m^2p)(-3m^4n^2p)(-3m^4n^2p)(-3m^4n^2p)(-3m^4n^2p) =$

12. Rewrite the following using positive exponents:

a) s^{-5}

$$\boxed{\frac{1}{s^5}}$$

b) $(2m^4)^{-3}$

$$\frac{1}{(2m^4)^3} = \frac{1}{(2^3)(m^4)^3} = \frac{1}{8m^{12}}$$

c) $-3x^{-4}$

$$-3 \cdot \frac{1}{x^4} = \boxed{-\frac{3}{x^4}}$$

To Simplify a Non-Zero Value with a Zero Exponent:

- any non-zero value raise to the zero exponent has a value of 1
- Negative exponents go in the denominator and make the exponent positive
- Positive exponents go in the numerator
- Coefficients always go in the numerator

13. Simplify each of the following:

a) $6x^0$

$$\frac{6 \cdot 1}{6} = 1$$

b) $\left(\frac{4}{9}\right)^0 + \left(\frac{5}{6}\right)$

$$1 + \frac{5}{6} = \frac{11}{6}$$

c) $\frac{14x^3y^8}{2x^3y^8}$

$$\frac{14}{2} \cdot \frac{y^8}{y^8} = \frac{7}{1} = 7$$

<p>24. The expression $\frac{-32x^6}{4x^2}$, $x \neq 0$, is equivalent to</p> <p>(1) $8x^4$ (2) $-8x^4$ (3) $8x^6$ (4) $-8x^6$</p> <p>Handwritten: $-8x^4$</p>	<p>25. What is the simplified form of $3a^4b^2c^3$?</p> <p>(1) $\frac{81a^4c^3}{b^2}$ (2) $\frac{81a^4}{b^2c^3}$ (3) $\frac{3a^4}{b^2c^3}$ (4) $\frac{3a^4c^3}{b^2}$</p> <p>Handwritten: $\frac{3a^4c^3}{b^2}$</p>
<p>26. What is the product of $2r^2 - 5$ and $3r$?</p> <p>(1) $6r^3 - 15r$ (2) $6r^2 - 15r$ (3) $6r^3 - 5$ (4) $6r^2 - 15$</p> <p>Handwritten: $3r(2r^2 - 5)$ $6r^3 - 15r$</p>	<p>27. Which of the following is equal to $\frac{x^2y + y^2}{-y}$?</p> <p>(1) $-x^2 - y$ (2) $-x^2 + y^2$ (3) $x^2 + y$ (4) $x^2 + y^2$</p> <p>Handwritten: $\frac{x^2y}{-y} + \frac{y^2}{-y}$ $-x^2 + -y$</p>
<p>28. Which expression is equivalent to $x^{-1} \cdot y^2$?</p> <p>(1) xy^2 (2) $\frac{y^2}{x}$ (3) $\frac{x}{y^2}$ (4) xy^{-2}</p> <p>Handwritten: $\frac{1 \cdot y^2}{x}$ $\frac{y^2}{x}$</p>	<p>29. $(-2x^2)^3 =$</p> <p>(1) $-2x^6$ (2) $-8x^6$ (3) $-8x^5$ (4) $-6x^6$</p> <p>Handwritten: $(-2)^3 (x^2)^3$ $-8x^6$</p>

<p>14. The expression $(-2a^2b^3)(4ab^5)(6a^3b^2)$ is equivalent to</p> <p>Handwritten: $-48a^6b^{10}$</p>	<p>15. Which expression is equivalent to $-3x(x-4) - 2x(x+3)$?</p> <p>Handwritten: $-3x^2 + 12x - 2x^2 - 6x$ $-5x^2 + 6x$</p>
<p>Fill in the " ? " for each of the following to make the statements true.</p> <p>16. $(4k^3)^2 = 16k^6$</p> <p>Handwritten: $[2]$</p>	<p>17. $(12g^4h^8)(-3g^3h^{12}) = -36g^{10}h^{20}$</p> <p>Handwritten: $[6]$</p>
<p>18. $(y-3)(y+?) = y^2 + 3y - 18$</p> <p>Handwritten: $[6]$</p>	<p>19. $\frac{4d^4e^5 - 2d^8e^7}{2d^2e^2} = 2d^3e^3 - d^7e^5$</p> <p>Handwritten: $[1]$ $[2]$</p>
<p>20. $(9x^2 + 8x + 2) + (3x^2 - 7x - 1) = 12x^2 + 1x^2 + 1$</p> <p>Handwritten: $[2]$ $[1]$</p>	<p>21. What is the value of $4(xy)^0$?</p> <p>(1) 1 (2) xy (3) 4 (4) 0</p> <p>Handwritten: $4 \cdot 1 = 4$</p>
<p>22. The perimeter of a square is $40x + 12$. What is the length of one of its sides?</p> <p>Handwritten: $\frac{40x + 12}{4} = 10x + 3$</p>	<p>23. The length of a rectangle is $(2f + 5)$ ft. & the width is represented by $(f - 3)$ ft. Find:</p> <p>a) the perimeter of the triangle</p> <p>Handwritten: $2f + 5$ $2f + 5$ $f - 3$ $f - 3$ $[6f + 4]$</p> <p>b) the area, in square feet, of the rectangle</p> <p>Handwritten: $(2f + 5)(f - 3)$ $2f^2 - 6f + 5f - 15$ $2f^2 - f - 15$</p>

30. For a photo at a family reunion, $8gh$ people arranged in 4h rows, with an equal number of people in each row. Which expression represents the number of people in one row of the photograph?

$$\frac{8gh}{4h} = 2g$$

- (1) $2g$
 (2) $4g$
 (3) $12gh^2$
 (4) $32gh^2$

31. Which expression represents $\frac{(2x^3)(8x^5)}{4x^6}$?

$$\frac{16x^8}{4x^6} = 4x^2$$

- (1) x^2
 (2) $4x^2$
 (3) $4x^8$
 (4) $4x^{21}$

32. A pizza shop owner is monitoring the amount of cheese he uses each week. The polynomials below model the pounds of cheese ordered in the past, where p represents pounds.

Mozzarella: $3p^3 - 6p^2 + 14p + 125$
 Cheddar: $12.5p^3 + 18p + 75$

Write a polynomial that models the total number of pounds of cheese ordered.

$$3p^3 + 6.5p^2 + 32p + 200$$

33. The length of a rectangle is $(4x + 5)$ and the width of a rectangle is $(x + 1)$.

a) Find the perimeter of the rectangle.

$$4x + 5$$

$$4x + 5$$

$$x + 1$$

$$x + 1$$

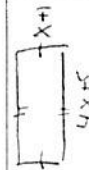
$$10x + 12$$

b) Find the area of the rectangle

$$(4x + 5)(x + 1)$$

$$4x^2 + 4x + 5x + 5$$

$$4x^2 + 9x + 5$$



34. Kelly simplified $(x+2)^2$ and got $x^2 + 4$. EXPLAIN Kelly's mistake and give the correct answer.

Kelly just squared x and 2 instead of using the double distributive property. She should have done: $(x+2)^2 = (x+2)(x+2)$
 $x^2 + 2x + 2x + 4$
 $x^2 + 4x + 4$

35. $(5x^2 - 7x - 4) + (2x^2 + 9x + 7) + (-8x^2 - 2x - 9)$

$$\begin{array}{r} 5x^2 + 9x + 7 \\ + (-8x^2 - 2x - 9) \\ \hline -3x^2 - 6x - 2 \end{array}$$

36. Subtract:

$$(4x + y - 3) - (6x - 3y + 1)$$

$$\begin{array}{r} 4x + y - 3 \\ - (6x - 3y + 1) \\ \hline -2x + 4y - 4 \end{array}$$

37. Simplify:

$$6a(a^2 + 4a - 2) - 3a$$

$$6a^3 + 24a^2 - 12a - 3a$$

$$6a^3 + 24a^2 - 15a$$

38. Simplify:

$$-20 - (7m - 6)$$

$$-20 - 7m + 6$$

$$-7m - 14$$

39. Subtract $(5y^2 - 8y + 3)$ from $(7y^2 - 3y - 4)$

$$(7y^2 - 3y - 4) - (5y^2 - 8y + 3)$$

$$2y^2 + 5y - 7$$

40. Multiply:

a) $(2x - 3)(x + 4)$
 $2x^2 + 8x - 3x - 12$
 $2x^2 + 5x - 12$

b) $(x - 6)^2 = (x - 6)(x - 6)$
 $x^2 - 6x - 6x + 36$
 $x^2 - 12x + 36$

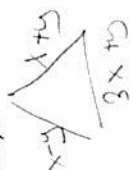
41. Multiply the following by its conjugate and express answer in standard form.

a) $(5 - m)(5 + m)$
 $25 + 5m - 5m - m^2$
 $-m^2 + 25$

42. Divide:

a) $\frac{a + abc}{a} = \frac{a}{a} + \frac{abc}{a} = 1 + bc$

b) $\frac{9x^2y - 12xy^2}{xy} = \frac{9x^2y}{xy} - \frac{12xy^2}{xy} = 9x - 12y$

<p>51. The lengths of the sides of a triangle are $x - y$, $x + y$, and $3x - y$. Find the perimeter of the triangle in terms of x and y.</p>  <p>$x - y + x + y + 3x - y$ $5x + y$</p>	<p>52. The area of a rectangle is $10x^2 - 20x$. Find the width given the length is $5x$.</p> <p>$A = L \cdot W$ $\frac{10x^2 - 20x}{5x} = L \cdot \frac{5x}{5x}$ $2x - 4 = L$ $2x - 4$</p>
<p>53. The perimeter of a rectangle is represented by $24x - 8$. If the length is represented by $3x + 5$, how would you represent the width in terms of x?</p> <p>$P = 2L + 2W$ $24x - 8 = 2(3x + 5) + 2W$ $24x - 8 = 6x + 10 + 2W$ $-6x - 10 - 6x - 10$ $\frac{14x - 18}{2} = \frac{2W}{2}$ $W = 9x - 9$</p> <p>check: $3x + 5$ $3x + 5$ $9x - 9$ $9x - 9$ $24x - 8$</p>	<p>54. Suppose you have been given this polynomial: $5b^4 + 4b^2 - 3b^4 + 3$</p> <p>a. How can you write this polynomial in standard form? $-3b^4 + 4b^2 + 5b + 3$</p> <p>b. What is the degree of the polynomial? 4</p>
<p>55. Describe and correct the error made in simplifying the product</p> <p>$(2x + 7)(2x - 7)$ $4x^2 - 14x + 14x - 49$ $4x^2 - 49$</p> <p>Error: They combined $-14x + 14x$ to get $-28x$ instead of $0x$.</p>	

<p>44. What is the value of $5^0 + 6^{-2}$?</p> <p>$1 + \frac{1}{36}$ $1 + \frac{1}{36}$</p>	<p>46. If the expression $(2y^a)^4$ is equivalent to $16y^8$, what is the value of a?</p> <p>$a = 2$</p> <p>$(4x^3)(4x^3) = \frac{16x^6}{2x} = 8x^5$</p>
<p>48. Simplify the expressions below:</p> <p>a) $\frac{(4x^3)^2}{2x} = \frac{(4^2)(x^3)^2}{2x} = \frac{16x^6}{2x} = 8x^5$</p> <p>b) $5c^{-3}d^{-6}e^{-2} \cdot 2c^4d^2e^{-2} = 10 \cdot \frac{c^{-3+4}d^{-6+2}e^{-2-2}}{1} = 10c^1d^{-4}e^{-4} = \frac{10c}{d^4e^4}$</p> <p>c) $\frac{a^2b^3c^4}{a^5b^2c^5} = a^{-3}b^1c^{-1} = \frac{1}{a^3} \cdot \frac{b}{c}$</p> <p>d) $\frac{-30x^2y^{-5}z^4}{15x^5y^4z^2} = -2x^{-3}y^{-9}z^2 = \frac{-2z^2}{x^3y^9}$</p>	

<p>43. Express in standard form: $5x - x^2 + 3 + x^7$</p> <p>Degree of above polynomial: 7</p> <p>★ Coefficient: 1</p> <p>45. Simplify:</p> <p>a) $(-3x^5)^2 = 9x^{10}$</p> <p>b) $(2x^2y^3)^4 = 16x^8y^{12}$</p> <p>c) $5^{-3} = \frac{1}{5^3} = \frac{1}{125}$</p> <p>d) $6(3^{-3}) = \frac{6}{27} = \frac{2}{9}$</p> <p>e) $(-2x)^0 = 1$</p>	<p>47. Simplify:</p> <p>a) $(2x^2 - 4x + 1) - 2(x^2 - 3x + 2)$ $2x^2 - 4x + 1 - 2x^2 + 6x - 4$ $2x^2 - 2x^2 - 4x + 6x + 1 - 4 = 2x - 3$</p> <p>b) $(6d^8)(-8d^9)(6d)$ $-288d^{18}$</p>
<p>49. For a square whose side is $(x - 5)$ feet, find the:</p> <p>a) perimeter $4(x - 5)$ $4x - 20$</p> <p>b) area $A = s^2$ $A = (x - 5)^2$ $(x - 5)(x - 5)$ $x^2 - 5x - 5x + 25$ $x^2 - 10x + 25$</p>	

<p>50. The side of a hexagon (6 sides) is represented by $4x - 3$. How would you represent the perimeter of the hexagon in terms of x?</p> <p>$6(4x - 3)$ $24x - 18$</p>
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