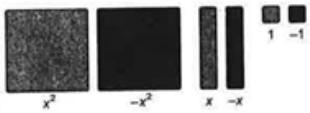
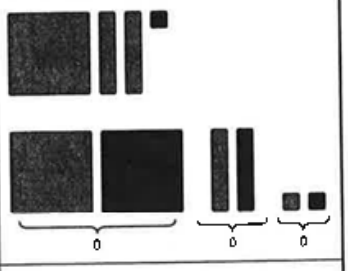
Unit 5 Study Guide

Skill	Description	Example
Recognize the different parts of a polynomial.	A polynomial may have variable terms and a constant term. The number in front of a variable is its coefficient.	variable term $3x^2 + 2x + 4$ coefficient, constant
Describe and classify polynomials.	A polynomial can be classified by its number of terms and by its term with the greatest degree.	Monomial: $3x$ Binomial: $2x + 5$ Trinomial: $x^2 + 2x - 1$ degree 2
Use algebra tiles to represent a polynomial.	We use these tiles:  A pair of tiles with the same shape and size, but different colours forms a zero pair. The tiles model 0.	$x^2 + 2x - 1$ 
Simplify polynomials by combining like terms.	To simplify a polynomial, add the coefficients of like terms.	Like terms: $4x^2$ and $-2x^2$ Unlike terms: $3x$ and -5 $4x^2 - 2x^2 = 2x^2$
Add polynomials.	To add polynomials, remove the brackets and add the coefficients of like terms.	$(4x^2 + 3x) + (x^2 - 5x)$ $= 4x^2 + 3x + x^2 - 5x$ $= 4x^2 + x^2 + 3x - 5x$ $= 5x^2 \quad 2x$
Subtract polynomials.	To subtract a polynomial, add the opposite terms.	$(3x^2 + 5x) - (2x^2 - x)$ $= 3x^2 + 5x + (-2x^2 + x)$ $= 3x^2 + 5x - 2x^2 + x$ $= 3x^2 - 2x^2 + 5x + x$ $= x^2 + 6x$
Multiply a polynomial by a monomial.	To multiply a polynomial by a monomial, use the distributive property.	$3x(6x - 5)$ $= 3x(6x) + (3x)(-5)$ $= 18x^2 + (-15x)$ $= 18x^2 - 15x$
Divide a polynomial by a monomial.	To divide a polynomial by a monomial, divide each term of the polynomial by the monomial.	$\frac{24x^2 - 32x}{8x} = \frac{24x^2}{8x} + \frac{-32x}{8x}$ $= 3x - 4$

Unit 5 Review

5.1 **1.** Is the polynomial a monomial, binomial, or trinomial?

a) $3s^2 + 11$ _____. **b)** $8d$ _____.

c) $2e^2 - 9e + 7$ _____. **d)** $8h - 1$ _____.

2. Sketch algebra tiles to model each polynomial.

a) $3k - 4$ **b)** $2m^2 - m + 3$ **c)** $-n^2 + 5n - 2$

_____ _____ _____

5.2 **3.** Simplify each polynomial.

a) $-7d + 4 + 8d - 2$

= _____

= _____

b) $3e^2 - 8e + 2e^2 + 11e$

= _____

= _____

c) $13 - 6h - 2h^2 + 7h - 9$

= _____

= _____

= _____

d) $-9k^2 + 15k - 8 - 2k^2 - 4k + 3$

= _____

= _____

4. Identify and explain any errors you find.

a) $2x^2 + 5x = 7x^2$

_____

_____

_____

b) $5s - 7s = -2s$

_____

_____

_____

5.3 **5.** Sketch algebra tiles to model each sum. Then write the sum.

a) $(-5e + 7) + (4e - 1)$

Remaining tiles: _____

So, $(-5e - 7) + (4e - 1)$ = _____

b) $(6f^2 - 2f + 5) + (-4f^2 - f - 3)$

Remaining tiles: _____

So, $(6f^2 - 2f + 5) \div (-4f^2 - f - 3)$

= _____

6. Add.

a) $(7r + 11) + (-2r + 3)$

= _____

= _____

= _____

b) $(-9s^2 + 5s) + (16s^2 - 9s - 14)$

= _____

= _____

= _____

5.4 **7.** Use algebra tiles to model each difference.
Sketch the tiles that remain, then write the difference.

a) $(-2t + 5) - (-5t + 7)$

Remaining tiles: _____

So, $(-2t + 5) - (-5t + 7)$ = _____

b) $(-7u - 2) - (-u^2 - 3u - 1)$

Remaining tiles: _____

So, $(-7u - 2) - (-u^2 - 3u - 1)$ = _____

8. Subtract.

a) $(6v - 5) - (13v - 3)$

$= 6v + 5 + (\_\_\_\_\_)$

= _____

= _____

= _____

b) $(10w^2 - 7) - (-2w + 9w^2 + 5)$

= _____

= _____

= _____

= _____

5.5 **9.** Write the multiplication sentence modelled by each set of tiles.

a)

_____

b)

_____

10. Multiply.

a) $6(-7y^2 + 1)$

$= 6(\_\_\_\_\_) + 6(\_\_\_\_\_)$

= _____

b) $-9(-2z^2 - 4z + 5)$

= _____

= _____

= _____

11. Divide.

a) $\frac{16a-40}{8}$

$= \frac{\quad}{8} + \frac{\quad}{8}$

$= \frac{16}{8} \times a + (\quad)$

$=$ _____

$=$ _____

b) $\frac{27b^2 - 9b + 36}{-9}$

$=$ _____

$=$ _____

$=$ _____

$=$ _____

5.6 **12.** Sketch algebra tiles to multiply. Write the product each time.

a) $2c(c + 5) =$ _____ **b)** $3d(-d + 4) =$ _____

13. Multiply.

a) $3e(5e - 2)$

$= (3e)(\quad) + (3e)(\quad)$

$= \_\_e^2 + (\quad)e$

$=$ _____

b) $-4f(5f + 2)$

$=$ _____

$=$ _____

$=$ _____

14. Divide.

a) $\frac{-21k^2}{7k}$

$= \frac{-21}{7} \times \frac{k^2}{k}$

$= \_\_ \times \frac{k \times k^1}{k_1}$

$= \_\_ \times k$

$=$ _____

b) $\frac{81m^2 - 45m}{-9m}$

$=$ _____

$=$ _____

$=$ _____

$=$ _____

c) $\frac{-33n^2 + 36n}{-3n}$

$=$ _____

$=$ _____

$=$ _____

$=$ _____

