

Student: _____
Date: _____

Instructor: Dawn Nolan
Course: Algebra 1 Honors P3 (1)

Assignment: Chapter 8- Form A

1. Factor the expression.

$$4x^2 + 8x + 3$$

$$ac = 12$$

1.12	2.6
2.6	3.4

$$\begin{array}{r} 4x^2 + 2x + 6x + 3 \\ \underline{2x \quad 2x \quad 3 \quad 3} \end{array}$$

$$4x^2 + 8x + 3 = (2x+3)(2x+1)$$

(Type your answer in factored form.)

$$2x(2x+1) + 3(2x+1) = (2x+3)(2x+1)$$

2. Find the degree of the term.

$$6x^3$$

The degree of $6x^3$ is 3.

3. Multiply.

$$(6x - 5)(9x + 5)$$

$$\begin{array}{r} 6x(9x+5) = 54x^2 + 30x \\ -5(9x+5) \quad \quad \quad -45x - 25 \\ \hline 54x^2 - 15x - 25 \end{array}$$

$$(6x - 5)(9x + 5) = \underline{54x^2 - 15x - 25}$$
 (Simplify your answer.)

4. Find expressions for the possible dimensions of the rectangular prism.

$$V = 9y^3 + 9y^2 + 2y$$

GCF

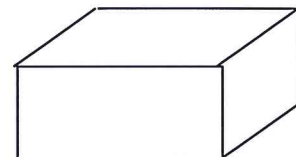
$$= y(9y^2 + 9y + 2)$$

$$y \left[\begin{array}{r} 9y^2 + 3y + 6y + 2 \\ \underline{3y \quad 3y \quad 2 \quad 2} \end{array} \right]$$

$$y [3y(y+1) + 2(3y+1)] = \boxed{y(3y+2)(y+1)}$$

ac = 18

1.18	2.9
2.9	3.6



The possible dimensions of the rectangular prism are _____
(Use a comma to separate answers as needed.)

5. Factor the expression.

$$x^2 + 7x + 12$$

1.12	2.6
2.6	3.4

$$x^2 + 7x + 12 = (x+3)(x+4)$$

6. Factor the expression.

$$x^2 - 14x - 32$$

1.32	2.16
2.16	4.8

$$x^2 - 14x - 32 = (x+2)(x-16)$$

(Type your answer in factored form.)

7. Simplify the product using the distributive property.

$$(x-3)(x+9)$$

$$\begin{array}{r} x(x+9) = x^2 + 9x \\ -3(x+9) \quad \quad \quad -3x - 27 \\ \hline x^2 + 6x - 27 \end{array}$$

$$(x-3)(x+9) = \underline{x^2 + 6x - 27}$$

8. Factor the expression.

$$n^2 - 22n + 40$$

1.40	-2.20
-2.20	5.8
4.10	5.8

$$n^2 - 22n + 40 = (n-2)(n-20)$$

9. Find the product.

$(x-3)(x+3)$

$(x-3)(x+3) = \underline{x^2-9}$ (Simplify your answer.)

$(a+b)(a-b) = a^2 - b^2$

or $x(x+3) = x^2 + 3x$
 $-3(x+3) = \underline{-3x-9}$
 $x^2 - 9$

10. Factor the expression.

$2x^2 + 9x - 5$

$2x^2 + 9x - 5 = \underline{(x+5)(2x-1)}$
(Type your answer in factored form.)

$a-c = -10$
 $\frac{-1, 10}{2, 5}$

$\frac{2x^2 - 1x + 10x - 5}{x(2x-1) + 5(2x-1)}$
 $(x+5)(2x-1)$

11. Use the distributive property to multiply.

$(2y+3)(y^2+5y-2)$

$(2y+3)(y^2+5y-2) = \underline{2y^3+13y^2+11y-6}$ (Simplify your answer.)

$2y(y^2+5y-2) = 2y^3+10y^2-4y$
 $3(y^2+5y-2) = \underline{3y^2+15y-6}$
 $2y^3+13y^2+11y-6$

12. Factor by grouping.

$25r^3 + 10r^2 - 10r - 4$

$25r^3 + 10r^2 - 10r - 4 = \underline{(5r^2-2)(5r+2)}$

$\frac{25r^3+10r^2}{5r^2} \quad \frac{-10r-4}{-2}$
 $5r^2(5r+2) - 2(5r+2) = (5r^2-2)(5r+2)$

13. Simplify the polynomial by combining like terms.

$2x^2 + 10x^2$

$2x^2 + 10x^2 = \underline{12x^2}$ (Simplify your answer.)

14. Factor out the greatest common factor.

$6x^2 - 4x$

$6x^2 - 4x = \underline{2x(3x-2)}$

$\frac{6x^2-4x}{2x}$

$2x(3x-2)$

15. Use FOIL to multiply.

$(y+7)(y-9)$

$(y+7)(y-9) = \underline{y^2-2y-63}$ (Simplify your answer.)

$y(y-9) = y^2-9y$
 $+7(y-9) = \underline{7y-63}$
 $y^2-2y-63$

16. Find the product.

$(7x+8)^2$

$(7x+8)^2 = \underline{49x^2+112x+64}$

$(a+b)^2 = a^2 + 2ab + b^2$
 $49x^2 + 112x + 64$

OR $(7x+8)(7x+8)$
 $7x(7x+8) = 49x^2 + 56x$
 $8(7x+8) = \underline{56x+64}$
 $49x^2 + 112x + 64$

17. Find the degree of the monomial.

$$5b^5c^2 \quad 5+2$$

The degree of the monomial is 7.

18. Find the product.

$$2y^3(2y^2 - 3y + 9)$$

$$2y^3(2y^2 - 3y + 9) = \underline{4y^5 - 6y^4 + 18y^3}$$

(Simplify your answer.)

19. Find the product.

$$\begin{array}{r} -2x \\ (x-2)^2 \end{array}$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$x^2 + 2(-2x) + 4$$

$$\text{or } (x-2)(x-2)$$

$$x(x-2) = x^2 - 2x$$

$$\begin{array}{r} -2(x-2) \quad -2x+4 \\ \hline x^2 - 4x + 4 \end{array}$$

$$(x-2)^2 = \underline{x^2 - 4x + 4}$$

20. Factor the expression.

$$x^2 - 20x + 100$$

$$\begin{array}{r} 100 \\ 1 \cdot 100 \\ 2 \cdot 50 \\ 4 \cdot 25 \end{array}$$

$$\begin{array}{r} 5 \cdot 20 \\ 100 \cdot 10 \end{array}$$

$$a \cdot c = 100 \\ 10 \cdot 10$$

$$\underline{x^2 - 10x - 10x + 100}$$

$$\begin{array}{l} x(x-10) - 10(x-10) \\ (x-10)(x-10) \end{array}$$

$$x^2 - 20x + 100 = \underline{(x-10)(x-10)} = \boxed{(x-10)^2}$$

21. Factor the expression.

$$x^2 - 49$$

$$a^2 - b^2 = (a+b)(a-b)$$

$$x^2 - 49 = \underline{(x+7)(x-7)}$$

(Type your answer in factored form.)

22. The area of a rectangular rug is given by the trinomial
- $r^2 - 2r - 15$
- . What are the possible dimensions of the rug? Use factoring.

The length and the width of the rectangle are $\underline{(r+3)(r-5)}$

(Use a comma to separate answers as needed.)

$$\begin{array}{r} -15 \\ 1 \cdot 15 \\ 3 \cdot 5 \end{array}$$

