

**Factor Completely. Show all work and then plug into graphing calculator to check.**

1)  $7x^2 - 8x + 1$

2)  $4k^2 + 3 = 7k$

3)  $3x^2 + 4x - 4$

**Factor and Solve for the following polynomials.**

4)  $6b^2 + 13b - 5$

5)  $9x^2 - 12x + 4$

6)  $(2x - 3)(5x + 8) = 0$

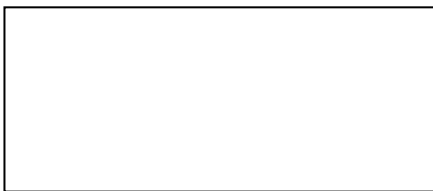
7)  $49x^2 - 64$

8) The area of a rectangle is  $(8x^2 - 22x - 21)$ . The length of the rectangle is  $(4x + 3)$ . What is the width of the rectangle?

9) The area of a rectangle is given by the expression  $6x^2 - 7x - 10$ . Which of the following represents the length and width of the rectangle in terms of  $x$ ?

10) A square has an area of  $25x^2 + 20x + 4$ . Which of the following represents the length of the side of the square?

11) Ms. Snyder's class was asked to find the area of the rectangle which has  $2x^2 + 9x - 5$  square inches and a width of  $x + 5$  inches. Write out the best equation for the area of the rectangle.



$x + 5$

12) Determine whether expression "A" is equivalent to expression "B." If not, change **expression B** to make it equivalent.

Expression A	<i>Expression B</i>	Equivalent? Yes/No	Corrected <i>Expression B</i> if needed
$2x^2 + 6x - 20$	$(x + 5)(x - 2)$		
$2x^2 - 11x + 5$	$(2x - 1)(x - 5)$		

**Solve the following using the Square Root Theorem.**

13)  $3x^2 = 108$

14)  $4x^2 - 13 = 0$

15)  $10x^2 - 13 = 0$

**Determine the discriminant and identify the type of solutions.**

16)  $4x^2 - 12x + 11 = 0$

17)  $4x^2 + 12x + 9 = 0$

18)  $5x^2 - 4x - 1 = 0$

A: \_\_\_\_ B: \_\_\_\_ C: \_\_\_\_

A: \_\_\_\_ B: \_\_\_\_ C: \_\_\_\_

A: \_\_\_\_ B: \_\_\_\_ C: \_\_\_\_

Discriminant: \_\_\_\_\_

Discriminant: \_\_\_\_\_

Discriminant: \_\_\_\_\_

Type of Sols: \_\_\_\_\_

Type of Sols: \_\_\_\_\_

Type of Sols: \_\_\_\_\_

19) Write out the Quadratic Formula by memory. \_\_\_\_\_

**Use the quadratic formula to solve the equation. Write "none" if it has no solution. Round to two decimal places.**

20)  $x^2 + 3x + 2$

21)  $2x^2 + 6 = 5x$

$x =$  \_\_\_\_ and  $x =$  \_\_\_\_

$x =$  \_\_\_\_ and  $x =$  \_\_\_\_

22)  $2x^2 + 5x - 3 = 0$ .

23)  $3x^2 - 4x + 9 = 0$

$x =$  \_\_\_\_ and  $x =$  \_\_\_\_

$x =$  \_\_\_\_ and  $x =$  \_\_\_\_

24) A ball is thrown from the roof of a building. Its height changes over time and is given by the equation  $h(t) = -16t^2 + 92t + 80$ , where  $t$  is the time in seconds after it was thrown and  $h$  is the height in feet. Given the height reach by the ball after:

(a) 4 seconds

(b) 6 seconds

What does the constant (80) represent in this equation?