

**SM2H 3.7 HW-Solving by Completing the Square 2018-19****Divide each fraction by 2.**

1.  $\frac{3}{2}$

2.  $\frac{5}{7}$

3.  $\frac{10}{3}$

**Factor.**

4.  $x^2 + 6x + 9$

5.  $x^2 - 8x + 16$

6.  $x^2 + 2x + 1$

**Find the value that completes the square and then write as a perfect square  $(x + a)^2$ .**

7.  $x^2 + 4x + \underline{\hspace{1cm}}$

8.  $x^2 - 2x + \underline{\hspace{1cm}}$

9.  $x^2 + 7x + \underline{\hspace{1cm}}$

10.  $x^2 - 9x + \underline{\hspace{1cm}}$

11.  $x^2 + x + \underline{\hspace{1cm}}$

12.  $x^2 - \frac{2}{3}x + \underline{\hspace{1cm}}$

**Solve each equation by completing the square.**

13.  $x^2 + 10x + 70 = 0$

14.  $x^2 + 16x + 84 = 0$

15.  $x^2 + 18x + 75 = -9$

16.  $x^2 + 20x = 38$

17.  $x^2 = 18x - 92$

18.  $x^2 + 13 = -10x$

19.  $x^2 - \frac{3}{2}x = \frac{1}{2}$

20.  $3x^2 + 6x - 78 = 0$

21.  $9x^2 - 18x - 54 = 0$

22.  $5x^2 + 72 = -12x$

23.  $8x^2 = -16x + 10$

24.  $9x^2 = 18x + 16$

25. The product of two numbers is 75. One number is ten less than five times the other number. What are the two numbers?

26. Think of the graph of  $h(t) = -4.9t^2 + 15t$ . ( $t$  acts just like  $x$  usually does and  $h$  acts just like  $y$  usually does, but when we use equations like this in story problems,  $t$  will stand for time and  $h$  will stand for height.)

a. Find the  $y$ -intercept.

b. Find the zeros. (give the answers a decimal rounded to the nearest hundredths).

**Find the zeros of the polynomial from factored form.**

27.  $f(x) = -x(x-12)(5x+7)$

**Write an equation in factored form for the function with the given zeros.**

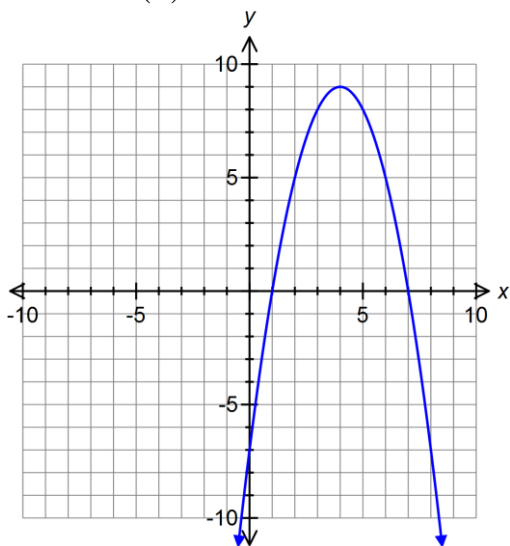
28.  $x = 14, 7, -6$

**Write an equation in standard form for the function with the given zeros.**

29.  $x = 2, -3$

Fill in all requested information for each function. If something is not applicable to the graph, write N/A.

30.  $f(x) = -x^2 + 8x - 7$



x-intercept(s): \_\_\_\_\_ y-intercept: \_\_\_\_\_

Relative Maximum Point: \_\_\_\_\_

Relative Maximum Value: \_\_\_\_\_

Relative Minimum Point: \_\_\_\_\_

Relative Minimum Value: \_\_\_\_\_

Absolute Maximum Point: \_\_\_\_\_ Value: \_\_\_\_\_

Absolute Minimum Point: \_\_\_\_\_ Value: \_\_\_\_\_

Positive: \_\_\_\_\_ Negative: \_\_\_\_\_

Increasing: \_\_\_\_\_ Decreasing: \_\_\_\_\_

Constant: \_\_\_\_\_

