Name_____   Date _____

Completely simplify each of the following radical expressions:

1) $3\sqrt{72x^3y^4c}$

2) $5\sqrt{8} - 6\sqrt{2} + \sqrt{32}$

3) $2\sqrt{3}\left(\sqrt{6} + 9\right)$

4) $x\sqrt{12} + 4\sqrt{5} - \sqrt{3x^2}$

5) Solve by **Factoring**:

$3x^2 - 11x - 20 = 0$

6) Solve by **Square Roots**:

$(x+5)^2 + 18 = 90$

7) Solve by **Quadratic Formula**:

$3x^2 + 4x = 2$

8) Solve by **Completing the Square**:

$4x^2 + 24x - 156 = 0$

Solve by the method of your choice. Show your work!

9) $x^2 - 48 = 2x$

10) $3x^2 + 21x - 48 = 0$

An object is projected into the air with a path described by the quadratic function
h(t) = –16t² + 32t + 108 where h is the height above the ground in feet and t is the time in seconds since the object started along the path.

11) At what time does the object hit the ground?

12) At what time is the object at 48 feet?

---

13) If $x^2 - 2x - 35 = 0$ and $x > 0$, then what is $x - 4$?

---

14)

Domain _____   Range _____

Rate of change over [-6, 3] _____

x – intercept in function notation _____

y – intercept in function notation _____

Interval of Increase _____   Decrease _____

Find $f\left(\underline{\quad}\right) = 6$ Root(s) _____

End behavior $x \rightarrow$ _____ $f(x) \rightarrow$ _____
                     $x \rightarrow$ _____ $f(x) \rightarrow$ _____