

Factor completely.		
1. $m^2 + 6m - 27$ $(m+9)(m-3)$	2. $h^2 - 25$ $(h+5)(h-5)$	3. $6p^2 - 72p + 120$ $6(p^2 - 12p + 20)$ $6(p-10)(p-2)$
4. $-x^2 + 3x + 40$ $-(x^2 - 3x - 40)$ $-(x-8)(x+5)$	5. $12k^2 - 54k - 210$ $6(2k^2 - 9k - 35)$ $6[2k^2 + 5k - 14k - 35]$ $6[k(2k+5) - 7(2k+5)]$ $6(k-7)(2k+5)$	6. $2n^2 - 7n - 4$ $2n^2 - 8n + 1n - 4$ $2n(n-4) + (n-4)$ $(2n+1)(n-4)$
7. $4r^3 - 28r^2$ $4r^2(r-7)$	8. $f^2 + 6f + 9$ $(f+3)(f+3)$ or $(f+3)^2$	9. $2t^3 - 5t^2 - 3t$ $t(2t^2 - 5t - 3)$ $t[2t^2 - 6t + 1t - 3]$ $t[2t(t-3) + 1(t-3)]$ $t(2t+1)(t-3)$

Use factoring to solve.		
10. $x^3 + 6x^2 = 16x$ $-16x \quad -16x$ $x^3 + 6x^2 - 16x = 0$ $x(x^2 + 6x - 16) = 0$ $x(x+8)(x-2) = 0$ $x=0 \quad x+8=0 \quad x-2=0$ $\quad \quad -8 \quad -8 \quad +2 \quad +2$ $\quad \quad \underline{-8} \quad \underline{-8} \quad \underline{+2} \quad \underline{+2}$ $x = -8 \quad x = 2$ $x = -8, 0, 2$	11. $r^2 - 7r - 8 = 0$ $(r-8)(r+1) = 0$ $r-8=0 \quad r+1=0$ $+8 \quad +8 \quad -1 \quad -1$ $r=8 \quad r=-1$ $r = -1, 8$	12. $6t^2 - 13t - 12 = -7$ $+7 \quad +7$ $6t^2 - 13t - 5 = 0$ $6t^2 - 15t + 2t - 5 = 0$ $3t(2t-5) + 1(2t-5) = 0$ $(3t+1)(2t-5) = 0$ $3t+1=0 \quad 2t-5=0$ $-1 \quad -1 \quad +5 \quad +5$ $3t = -1 \quad 2t = 5$ $\frac{3t}{3} = \frac{-1}{3} \quad \frac{2t}{2} = \frac{5}{2}$ $t = -\frac{1}{3} \quad t = \frac{5}{2}$ $t = -\frac{1}{3}, \frac{5}{2}$

$$13. -9v + 2 = v^2 + 20$$

$$\underline{+9v - 2} \quad \underline{+9v - 2}$$

$$0 = v^2 + 9v + 18$$

$$0 = (v+3)(v+6)$$

$$\begin{array}{l|l} v+3=0 & v+6=0 \\ -3 & -6 \\ \hline v=-3 & v=-6 \end{array}$$

$$V = -6, -3$$

$$14. 2m^2 + m = 1$$

$$m = -1, \frac{1}{2}$$

$$\underline{-1} \quad \underline{-1}$$

$$2m^2 + m - 1 = 0$$

$$2m^2 + 2m - 1m - 1 = 0$$

$$2m(m+1) - 1(m+1) = 0$$

$$(2m-1)(m+1) = 0$$

$$\begin{array}{l|l} 2m-1=0 & m+1=0 \\ \underline{+1} \quad \underline{+1} & \underline{-1} \quad \underline{-1} \\ \hline 2m = \frac{1}{2} & m = -1 \end{array}$$

$$m = \frac{1}{2}$$

$$m = \frac{1}{2}$$

$$15. x^2 + 9x = 0$$

$$x(x+9) = 0$$

$$x=0 \quad \left| \quad \begin{array}{l} x+9=0 \\ \underline{-9} \quad \underline{-9} \\ \hline x = -9 \end{array} \right.$$

$$x = -9$$

$$x = -9, 0$$

Graph to solve the following. Round to the nearest thousandth.

$$16. x^2 + 6x = 9$$

$$x = -7.243, 1.243$$

$$17. x^2 - 10x - 140 = 0$$

$$x = 17.845, -7.845$$

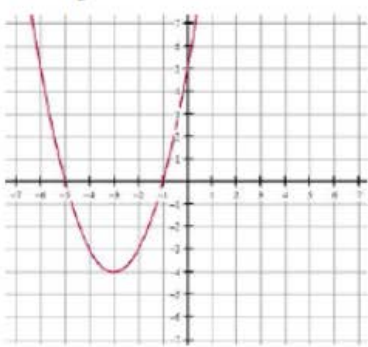
$$18. -\frac{1}{5}x^2 + 740 = 3x$$

$$x = -68.788, 53.788$$

Review Skillz

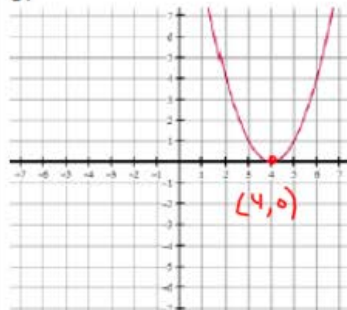
Write the equation of the quadratic function in vertex form, $y = a(x-h)^2 + k$. See example for a refresher!

Example:



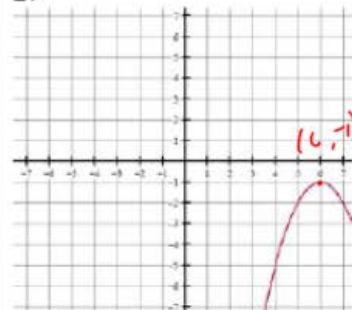
$$y = (x+3)^2 - 4$$

1.



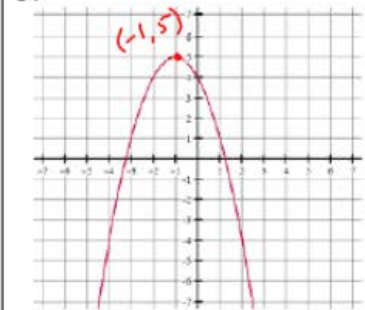
$$y = (x-4)^2$$

2.



$$y = -(x-6)^2 - 1$$

3.



$$y = -(x+1)^2 + 5$$