

HW 6C: lobe h k

6b.) $f(x) = (x+3)^2$

y-int: $(0+3)^2 = (3)^2 = \boxed{9}$ x-int: $(x+3)^2 = 0$

$\therefore x+3=0$
 $\boxed{x=-3}$

6c.) $y = -x^2 + 7x - 8$ $\boxed{y\text{-int: } -8}$

~~$\begin{matrix} 8 \\ \times \\ 7 \end{matrix}$~~ not factorable

check discriminant

$(7)^2 - 4(-1)(-8) = 49 - 32 = 17 \therefore$ positive # \rightarrow 2 real solutions

$x = \frac{-7 \pm \sqrt{17}}{2(-1)} \Rightarrow x = \frac{-7 \pm \sqrt{17}}{-2} \Rightarrow$ $\boxed{x = \frac{7 \pm \sqrt{17}}{2}}$ ^{use quadratic} $\begin{matrix} x \approx 1.44 \\ x \approx 5.56 \end{matrix}$

6d.) $f(x) = -2x^2 + 3x + 7$ $\boxed{y\text{-int: } 7}$

~~$\begin{matrix} -14 \\ \times \\ 3 \end{matrix}$~~ not factorable

check discriminant

$(3)^2 - 4(-2)(7) \Rightarrow 9 + 56 = 65 \therefore$ positive # \rightarrow 2 real solutions

$x = \frac{-3 \pm \sqrt{65}}{2(-2)} \Rightarrow x = \frac{-3 \pm \sqrt{65}}{-4} \Rightarrow$ $\boxed{x = \frac{3 \pm \sqrt{65}}{4}}$ $\begin{matrix} x \approx -1.27 \\ x \approx 2.77 \end{matrix}$

65
^
5 13
no perfect square factors

6k.) $y = 4x^2 - 4x - 3$ $\boxed{y\text{-int: } -3}$

~~$\begin{matrix} -12 \\ \times \\ -6 \\ \times \\ -4 \end{matrix}$~~ is factorable

factor by grouping $(4x^2 - 6x) + (2x - 3) = 0$
 $2x(2x - 3) + 1(2x - 3) = 0$
 $(2x + 1)(2x - 3) = 0$

$2x + 1 = 0$
 $\boxed{x = \frac{-1}{2}}$

$2x - 3 = 0$
 $\boxed{x = \frac{3}{2}}$