

HW1 MATH 1540

(1)

§2.2

#7

Solve
 $4x - 3 = 5$

add 3

$$\rightarrow 4x = 8$$

div by 4

$$\rightarrow \boxed{x = 2}$$

Solve

#15 $\frac{x+2}{4} - \frac{x-1}{3} = 2$

multiply by 4

$$\rightarrow 4\left(\frac{x+2}{4} - \frac{x-1}{3}\right) = 8$$

$$x+2 - \frac{4(x-1)}{3} = 8$$

multiply by 3

$$3\left[x+2 - \frac{4(x-1)}{3}\right] = 24$$

$$\rightarrow 3(x+2) - 4(x-1) = 24$$

distribute

$$\rightarrow 3x+6 - 4x+4 = 24$$

$$\rightarrow -x+10 = 24$$

subtract 10

$$\rightarrow -x = 14$$

multiply by -1

$$\rightarrow \boxed{x = -14}$$

#26

Find equation of line between points $(-3, 10)$ and $(5, -6)$.

Soln: First find slope:

$$m = \frac{-6-10}{5-(-3)} = \frac{-16}{8} = -2$$

Now plug into point-slope form of eqn of line, using $(x_0, y_0) = (-3, 10)$:

$$\boxed{y - 10 = -2(x - (-3))}$$

§2.5

#9 Solve $6x^2 + 17x + 5 = 0$

Soln: Use quadratic formula: $a=6, b=17, c=5$

$$\Rightarrow x = \frac{-17 \pm \sqrt{(17)^2 - 4(6)(5)}}{2(6)}$$

$$= \frac{-17 \pm \sqrt{169}}{12} = \frac{-17 \pm 13}{12}$$

(2)

#38] Solve $2x^2 + 5x + 3 = 0$

Soln: Use Q.F. with $a=2, b=5, c=3$ to get

$$x = \frac{-5 \pm \sqrt{5^2 - 4(2)(3)}}{2(2)} \quad , \quad 5^2 - 2(4)(3) = 25 - 24 = 1$$

$$= \frac{-5 \pm \sqrt{1}}{4} \Rightarrow \boxed{x = -1, -\frac{3}{2}}$$

#41] Solve $3x^2 - 5x + 1 = 0$

Soln: Use Q.F. with $a=3, b=-5, c=1$ to get

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(1)}}{2(3)}$$

$$= \frac{5 \pm \sqrt{25 - 12}}{6}$$

$$= \frac{5 \pm \sqrt{13}}{6}$$

§3.5

#29 Sketch

$$k(x) = (x-2)^3 - 1$$

Shift right by 2

Shift down by 1

Soln: Start with known graph $y=x^3$ and then transform:

