Completing the square when $a \neq 1$

$$\frac{3x^2}{3} - \frac{11x}{3} - \frac{4}{3} = \frac{0}{3}$$

Step 1. Divide off coefficient from all terms

$$x^2 - \frac{11}{3}x - \frac{4}{3} = 0$$

Step 2 continue steps half of x-term, square, add to both sides

$\frac{1}{2} \cdot \frac{11}{3} = \frac{11}{6}$

$$x^2 - \frac{11}{3}x + \left(\frac{11}{6}\right)^2 = \frac{4}{3} + \left(\frac{11}{6}\right)^2$$

$$\left(x - \frac{11}{6}\right)^2 = \frac{124}{12}\frac{4}{3} + \frac{121}{36}$$

$$\left(x - \frac{11}{6}\right)^2 = \frac{48}{36} + \frac{121}{36}$$

$$\sqrt{\left(x - \frac{11}{6}\right)^2} = \sqrt{\frac{169}{36}}$$

$$x - \frac{11}{6} = \pm\frac{13}{6}$$

$x - \frac{11}{6} = \frac{13}{6}$ $+\frac{11}{6}$ $+\frac{11}{6}$

$x = \frac{24}{6} = 4$

$x - \frac{11}{6} = -\frac{13}{6}$ $+\frac{11}{6}$ $+\frac{11}{6}$

$x = -\frac{2}{6}$

$x = -\frac{1}{3}$

Step 4 Solve for x

$$x - \frac{11}{6} = \pm\frac{13}{6}$$

$$x = \frac{-11}{6} + \frac{13}{6} \quad or \quad x = \frac{-11}{6} - \frac{13}{6}$$

$$x = \frac{2}{6} or \frac{1}{3} \qquad x = \frac{-24}{6} or -4$$

See example 5 in textbook

Do 5A and 5B in textbook and turn in on this paper TODAY
HW:

34. $\frac{2x^2}{2} + \frac{x}{2} - \frac{3}{2} = \frac{0}{2}$

$x^2 + \frac{1}{2}x - \frac{3}{2} = 0$

$\frac{1}{2} \cdot b$

$\frac{1}{2} \cdot \frac{1}{2}$

$\frac{1}{4}$

$x^2 + \frac{1}{2}x = \frac{3}{2}$

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

$\left(x + \frac{1}{4}\right)^2 = \frac{3}{2} \cdot \frac{8}{8} + \frac{1}{16} + \frac{24}{16}$

$\sqrt{\left(x + \frac{1}{4}\right)^2} = \sqrt{\frac{25}{16}}$

$x + \frac{1}{4} = \pm \frac{5}{4}$

$x + \frac{1}{4} = \frac{5}{4}$ $\quad -\frac{1}{4}$

$x = 1$

$x + \frac{1}{4} = -\frac{5}{4}$ $\quad -\frac{1}{4}$

$x = -\frac{6}{4}$ OR $-\frac{3}{2}$