2.2 Extra examples

2.2 #13 Ex $49x^2 + 25 = 70x$

$49x^2 - 70x + 25 = 0$

* Square root

$(7x - 5)(7x - 5) = 0$

$x = \boxed{5/7}$

Ex $25x^2 + 4 = 20x$

$25x^2 - 20x + 4 = 0$

$(5x - 2)(5x - 2) = 0$

$x = \boxed{2/5}$

2.2 #14 Ex $12(p^2 - 1) = 7p$

$12p^2 - 12 = 7p$

$12p^2 - 7p - 12 = 0$

FACTORS: 1·12, 2·6, 4·3

$(4p + 3)(3p - 4) = 0$ * use factors closest to each other, * larger #s on outside, * negative on right

$p = \boxed{-3/4, 4/3}$

Ex $45(p^2 - 1) = 56p$

$45p^2 - 45 = 56p$

$45p^2 - 56p - 45 = 0$

FACTORS: 1·45, 3·15, 5·9

$(9p + 5)(5p - 9) = 0$

$p = \boxed{-5/9, 9/5}$

2.2 #21 Ex $8x^2 = 8 - 7x$

$8x^2 + 7x - 8 = 0$

$x = \dfrac{-7 \pm \sqrt{49 - 4(8)(-8)}}{2(8)}$

$= \boxed{\dfrac{-7 \pm \sqrt{305}}{16}}$

Quadratic Equation

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

2.2 Ex #23 $\frac{5}{7}x^2 - x = \frac{3}{7}$

$5x^2 - 7x = 3$

$5x^2 - 7x - 3 = 0$

$$x = \frac{7 \pm \sqrt{49 - 4(5)(-3)}}{2(5)}$$

$$x = \frac{7 \pm \sqrt{109}}{10}$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

2.2 Ex #24 $x^2 - 4x - 3 = 0$

$$\frac{4 \pm \sqrt{16 - 4(1)(-3)}}{2(1)}$$

$$\frac{4 \pm \sqrt{28}}{2}$$

$\sqrt{28}$ (4)(7)

$$\frac{4 \pm 2\sqrt{7}}{2}$$ reduce $= 2 \pm \sqrt{7}$

* perfect squares

4, 6, 9, 16, 25, 36 ....