April 20, 2015

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

11.2

#2 $5\left(\frac{2}{5}y^2 + \frac{1}{5}y - \frac{3}{5} = 0\right)$

$2y^2 + y - 3 = 0$

$a = 2,\ b = 1,\ c = -3$

$b^2 - 4ac = (1)^2 - 4(2)(-3)$

$= 1 - 8(-3)$

$= 1 + 24$

$= 25$

$25 > 0 \Rightarrow$ 2 Real solutions

$x = \frac{-(1) \pm \sqrt{25}}{2(2)}$

$= \frac{-1 \pm 5}{4}$

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

② $x = \frac{-1-5}{4} = -\frac{6}{4} = \boxed{-\frac{3}{2}}$

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#1) $x^2 + 8x + 15 = 0$

$a = 1,\ b = 8,\ c = 15$

$b^2 - 4ac = (8)^2 - 4(1)(15)$

$= 64 - 4(15)$

$= 64 - 60$

$= 4 \Rightarrow$ 2 Real solution

$x = \frac{-(8) \pm \sqrt{(8)^2-4(1)(15)}}{2(1)}$

$= \frac{-8 \pm \sqrt{64-4(15)}}{2}$

$= \frac{-8 \pm \sqrt{64-60}}{2}$

$= \frac{-8 \pm \sqrt{4}}{2}$

$= \frac{-8 \pm 2}{2}$

① $x = \frac{-8+2}{2} = -\frac{6}{2} = -3$

② $x = \frac{-8-2}{2} = -\frac{10}{2} = -5$

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#14) $2\left(\frac{1}{2}x^2 = x - \frac{1}{2}\right)$

$x^2 = 2x - 1$

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

$a = 1,\ b = -2,\ c = 1$

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Solve. By any means!

$\left(\sqrt{16x}\right)^2 = (x+3)^2$ FOIL

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

$-16x \quad\quad -16x$

$0 = x^2 - 10x + 9$

$(x-9)(x-1) = 0$

$x = 9,\ x = 1$

$b^2 - 4ac = (-10)^2 - 4(1)(9)$

$= 100 - 36$

$= 64$

$x = \frac{-(-10) \pm \sqrt{(-10)^2-4(1)(9)}}{2(1)}$

$= \frac{10 \pm \sqrt{64}}{2}$

$= \frac{10 \pm 8}{2}$

① $x = \frac{10+8}{2} = \frac{18}{2} = \boxed{9}$

② $x = \frac{10-8}{2} = \frac{2}{2} = \boxed{1}$

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$x - \sqrt{17-4x} - 3 = 0$

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