

1b, 3b, 2a, 1a, 3a

1a)

$$(x+3)^2 - 5(x+3) + 4 = 0$$

$$u = x+3$$

$$u^2 - 5u + 4 = 0$$

$$u = \frac{5 \pm \sqrt{25 - 4(1)(4)}}{2(1)}$$

$$u = \frac{5 \pm \sqrt{9}}{2} = \frac{5 \pm 3}{2}$$

$$u = \frac{5+3}{2} = \frac{8}{2} = 4$$

$$u = \frac{5-3}{2} = \frac{2}{2} = 1$$

$$4 = x+3$$

$$-3$$

$$1 = x$$

$$1 = x+3$$

$$-3$$

$$-2 = x$$

$$1b) (2x-1)^2 - 5(2x-1) + 4 = 0$$

$$u = 2x-1$$

$$u^2 - 5u + 4 = 0$$

$$u = 4, 1$$

From previous problem!

$$4 = 2x-1$$

$$5 = 2x$$

$$x = 2.5$$

$$1 = 2x-1$$

$$2 = 2x$$

$$x = 1$$

2a)

$$\underbrace{(x-7)}_u^2 - 13\underbrace{(x-7)}_u + 36 = 0$$

$$u = x - 7$$

$$u^2 - 13u + 36 = 0$$

$$u = \frac{13 \pm \sqrt{13^2 - 4(1)(36)}}{2(1)}$$

$$u = \frac{13 \pm \sqrt{25}}{2} = \frac{13 \pm 5}{2}$$

$$u = \frac{13+5}{2} = \frac{18}{2} = 9$$

$$u = \frac{13-5}{2} = \frac{8}{2} = 4$$

$$x - 7 = 9$$
$$+ 7$$

$$x = 16$$

$$x - 7 = 4$$

$$x = 11$$

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

$$u = \frac{1}{2y}$$

$$2u^2 + 5u - 3 = 0$$

$$a=2 \quad b=5 \quad c=-3$$

$$u = \frac{-5 \pm \sqrt{25 - 4(2)(-3)}}{2(2)} = \frac{5 \pm \sqrt{49}}{4}$$

$$u = \frac{5+7}{4} = \frac{12}{4} = 3$$

$$u = \frac{5-7}{4} = -\frac{2}{4} = -\frac{1}{2}$$

$$2y(3) = \left(\frac{1}{2y}\right)^2 y \quad \cancel{7\left(-\frac{1}{2}\right) = \left(\frac{1}{2y}\right)^2 y}$$

$$6y = 1$$

$$-y = 1$$

$$y = \frac{1}{6}$$

$$y = -1$$

3b)

$$2(y^2-4)^2 + 5(y^2-4) - 3 = 0$$

$$u = y^2 - 4$$

$$2u^2 + 5u - 3 = 0$$

$$u = 3, -\frac{1}{2}$$

from previous problem!

$$3 = y^2 - 4$$

$$+4$$

$$7 = y^2$$

$$y = \pm \sqrt{7}$$

$$-\frac{1}{2} = y^2 - 4$$

$$+4$$

$$3.5 = y^2$$

$$y = \pm 1.87$$

4/16/10

2b) solve for x. ~~x~~ crucial step!

$$(1-3x)^2 - 13(1-3x) + 36 = 0$$