Algebra 2 Weds. 4-24-13 Class Notes

(33) Eq1: $8y - x = 2$ → $-x - 2 = -8y$

Eq2: $x - 10 = -4y^2$ → $x - 10 = -4y^2$

$-12 = -4y^2 - 8y$

$12 = 4y^2 + 8y$

$4y^2 + 8y - 12 = 0$

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

sum ⇒ 2

prod ⇒ −3

−1, +3

$4(y-1)(y+3) = 0 \quad \therefore y = 1, -3$

Eq1: $8(1) - x = 2$

$-x = -6 \quad \therefore x = 6$ $\boxed{(6, 1)}$ x, y

$8(-3) - x = 2$

$-x = 26 \quad \therefore x = -26$ $\boxed{(-26, -3)}$ x, y

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35 (Eq1) $x^2+4y^2=36 \longrightarrow x^2+4y^2=36$

(Eq2) $x^2+y^2=9 \xrightarrow{(-1)} -x^2-y^2=-9$

$$\frac{3y^2}{3}=\frac{27}{3}$$

$$y^2=9$$

$$\therefore y=\pm 3$$

(Eq2) $+3$ $\quad x^2+(3)^2=9$

$$x=0$$

$\boxed{(0,3)}$

(Eq2) -3 $\quad x^2+(-3)^2=9$

$\boxed{(0,-3)}$

(37) (Eq1) $x + 6 = \frac{1}{2}y^2 \longrightarrow x + 6 = \frac{1}{2}y^2$

(Eq2) $x - 4 = -\frac{1}{8}y^2 \xrightarrow{(-1)} -x + 4 = \frac{1}{8}y^2$

$\frac{8}{8} \cdot 10 = \frac{5}{8}y^2 \cdot \frac{8}{5}$

$16 = y^2$

$\pm 4 = y$

(Eq1) $x + 6 = \frac{1}{2}(4)^2$

$x + 6 = 8$

$x = 2$

(2, 4)

(Eq1) $x + 6 = \frac{1}{2}(-4)^2$

$x = 2$

(2, -4)

(39) (Eq 1) $x - 3 = 2y^2 \longrightarrow -2y^2 + x = 3$

(Eq 2) $y^2 - 9x^2 = 36 \longrightarrow y^2 - 9x^2 = 36$

$-2y^2 + x = 3$

$2y^2 - 18x^2 = 72$

$-18x^2 + x - 75 = 0$

$18x^2 - x + 75 = 0$

$a = 18$

$b = -1$

$c = 75$

$b^2 - 4ac$

$(-1)^2 - 4(18)(75)$

$d = \text{neg.} \therefore$ NO REAL SOLUTION

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$$\begin{cases} 3x^2 - 6y^2 = 204 & \text{Eq1} \\ 4x^2 - 2y^2 = 368 & \text{Eq2} \end{cases}$$

$3x^2 - 6y^2 = 204 \longrightarrow 3x^2 - 6y^2 = 204$

$4x^2 - 2y^2 = 368 \xrightarrow{(-3)} -12x^2 + 6y^2 = -1104$

$-9x^2 = -900$

$x^2 = 100$

$x = \pm 10$

Eq2

$4(10)^2 - 368 = 2y^2$

$32 = 2y^2$

$16 = y^2$

$\pm 4 = y$ ← $+10, -10$

(10, 4)

(10, −4)

(−10, 4)

(−10, −4)