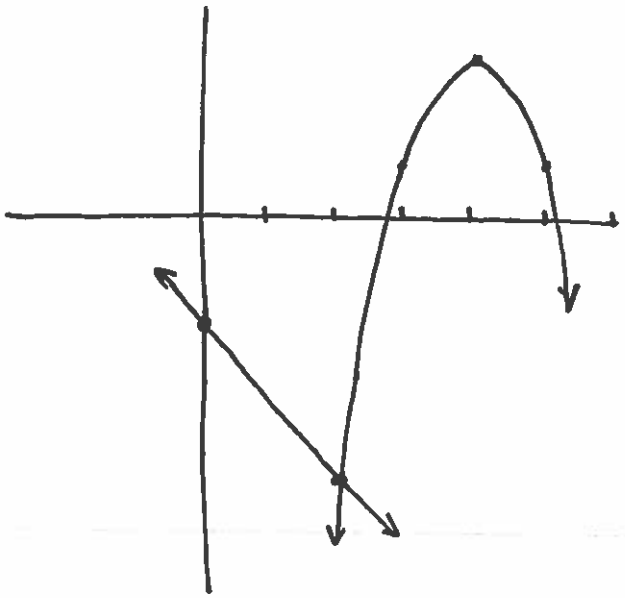
Ch 8 Review pg 457

1 a) $(2, -5)$ is on both tables

b)



c) 2ND Solution

$Y_1 = -1.5x - 2$

$Y_2 = -2(x-4)^2 + 3$

Calc intersect

$(6.75, -12.125)$

2 a) 0, 1, or 2

b) 0, 1, or 2

c) 0, 1, or 2

3 a) $Y_1 = \frac{2}{3}x + 4$

$Y_2 = -3(x+6)^2$

Calc intersect

$(-6.\overline{2}, -0.\overline{148})$

$(-6, 0)$

b) $Y_1 = x^2 - 4x + 1$

$Y_2 = -\frac{1}{2}(x-2)^2 + 3$

Calc intersect

$(0, 1)$ $(4, 1)$

4. They will not intersect. x^2+3 will be 2 greater than x^2+1 for all values of x.

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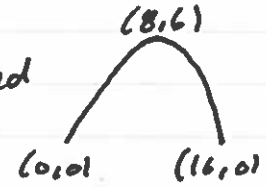
5a) $Y_1 = \frac{1}{3}(x+2)^2 + 2$
$Y_2 = \frac{1}{3}(x-1)^2 + 3$
calc intersect $(0, 10/3)$

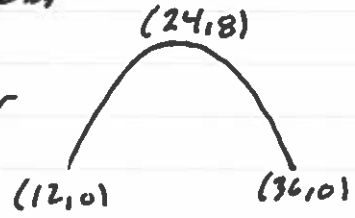
b) $Y_1 = -6x^2 - 4x + 7$
$Y_2 = x^2 + 2x - 6$
calc intersect
$(-1.86, -6.27)$ $(1, -3)$

c) $Y_1 = -3d^2 - 2d + 3.25$
$Y_2 = \frac{1}{8}d - 5$
calc intersect $(-2.05, -5.26)$ $(1.34, -4.83)$

6. road



river



$Y = a(x-8)^2 + 6$
$0 = a(-8)^2 + 6$
$-6 = 64a$
$-\frac{3}{32} = a$
$Y = -\frac{3}{32}(x-8)^2 + 6$

$Y = a(x-24)^2 + 8$
$0 = a(12-24)^2 + 8$
$-8 = 144a$
$-\frac{1}{18} = a$
$Y = -\frac{1}{18}(x-24)^2 + 8$

b) $Y_1 = -\frac{3}{32}(x-8)^2 + 6$
$Y_2 = -\frac{1}{18}(x-24)^2 + 8$
Calc intersect
$(14.08, 2.53)$

c) the support footing needs to be 14.08 m from the beginning of the road arch.

7. a) $h = -0.09d^2 + 1.8d$ arc of the ball flight
$h = \frac{1}{2}d$ slope of the straight hill

b) $Y_1 = -0.09d^2 + 1.8d$
$Y_2 = \frac{1}{2}d$
Calc intersect
$(14.\bar{4}, 7.\bar{2})$ $(0,0)$

c) the ball hits 14.4 m over, 7.2 m up from where it was kicked

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8. a) $(2,-3)$ $(6,5)$ from graph

b) $x^2-6x+5 = 2x-7$

$x^2-8x+12=0$

$(x-6)(x-2)=0$

$x=6 \quad x=2$

$(6,5) \quad (2,-3)$

9. sub $(\frac{1}{2},1)$ $\quad 4(\frac{1}{4})-3=-2$ $\quad 1-3=-2$ ✓ $\quad \frac{1}{4}+\frac{7}{4}+5=7$ $\quad 2+5=7$ ✓

sub $(\frac{1}{2},-1)$ $\quad 4(\frac{1}{4})+3=-2$ $\quad 1+3=-2$ ✗

$(\frac{1}{2},1)$ is the correct solution.

10 a) $3k+1 = 6k^2+10k-4$

$0 = 6k^2+7k-5$

$(3k+5)(2k-1)$

$k=-5/3 \quad k=\frac{1}{2}$

$p=3k+1$

$(-5/3,-4) \quad (\frac{1}{2},\frac{5}{2})$

b) $4x^2+3y=1 \quad 3x^2+2y=4$

$\rightarrow 9x^2+6y=12$

$8x^2+6y=2$

$x^2 = 10$

$x=\pm\sqrt{10}$

$\sqrt{10}$

$40+3y=1$

$3y=-39$

$y=-13$

$(\sqrt{10},-13)$

$30+2y=4$

$2y=-26$

$y=-13$

$(-\sqrt{10},-13)$

c) $2w^2+w-2z=12 \quad 4w^2-9w+2z+4=0$

$2w^2+w-2z-12=0$

$6w^2-8w-8=0$

$3w^2-4w-4=0$

$(3w+2)(w-2)=0$

$w=-2/3 \quad | \quad w=2$

$z=-5/3 \quad | \quad z=-1$

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10d $2y = x^2 - x + 1 \quad -y = x^2 + 2x - 3$

$-2y = 2x^2 + 4x - 6$

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

$x = \frac{-3 \pm \sqrt{9 + 60}}{6}$

$x = \frac{-3 + \sqrt{69}}{6}, \quad \frac{-3 - \sqrt{69}}{6}$

$(.884, .449) \quad (-1.88, 3.22)$

11a) $-.002d^2 + .3d = -.004d^2 + .5d$

$.002d^2 - .2d = 0$

$d(.002d - .2)$

$.002d = .2$

$d = 0 \qquad d = 100 \qquad 100\text{m} \qquad$ b) 10m

12. b) $-.007t^2 + .05t = -.0085t^2 + .06t$

$.0015t^2 - .01t = 0$

$t(.0015t - .01) = 0$

$.0015t = .01$

$t = 0 \qquad t = 6.\bar{6}$

$6\ 2/3$ (Surface area $.0\bar{2}$)

6 hours 40 min $\qquad 1/45\ mm^2$