11.7 ex 5 $y = a(x-h)^2 + k$

p. 726 $f(x) = x^2 + 8x + 10$ $y = Ax^2 + Bx + C$

$A = 1 \quad B = 8 \quad C = 10$

$\frac{-B}{2A} = \frac{-8}{2} = -4$

$(-4, -6)$

$f(-4) = 16 - 32 + 10$

2x8 $f(x) = -3x^2 + 12x - 8$

($A = -3$, $B = 12$)

$$\frac{-B}{2A} = \frac{-12}{-6} = 2$$

$V(2, 4)$

$-12 + 24 - 8$

ex 12 $f(x) = 3x^2 - 6x + 4$

$A = 3 \quad B = -6 \quad C = 4$

axis $x = \frac{-B}{2A} = \frac{6}{6} = 1$

$V(1, 1)$

$3 - 6 + 4$

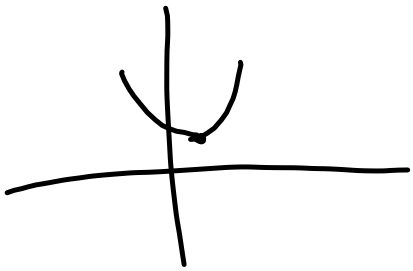
$A < 0$ open down

$A = 3 > 0$

open up

$|A| > 1$, so this is narrow

$0 < |A| < 1$ wider



Discriminant

$B^2 - 4AC$

$= 36 - 4(3)(4)$

$= 36 - 48 = -12$

no x intercepts

$$\frac{-B \pm \sqrt{B^2 - 4AC}}{2A} \qquad 0$$

ex14 $f(x) = -1x^2 + 7x + 2$

$A = -1 < 0$ opens down

$|A| = 1$

$|-1| = 1$ same width as $y = x^2$

$x = \frac{-B}{2A} = \frac{-7}{-2} = 3.5$

$V(3.5, 14.25)$

$-12.25 + 24.5 + 2$

$B^2 - 4AC$

$= 49 - 4(-1)(2)$

$= 49 + 8 = 57$

2 x intercepts

x	y
3	
2	

ex $f(x) = x^2 + 6x + 9$ $A = 1 > 0$

opens up and same width as $y = x^2$

$\frac{-B}{2A} = \frac{-6}{2} = -3$

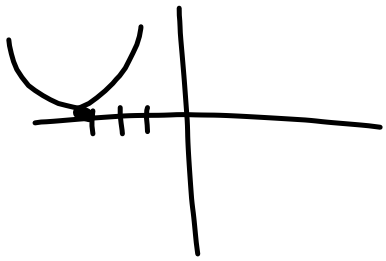
$V(-3, 0)$

$9 - 18 + 9$

$B^2 - 4AC$

$36 - 4(1)(9)$

$36 - 36 = 0$



Ex 2 4 $f(x) = x^2 + 10x + 23$

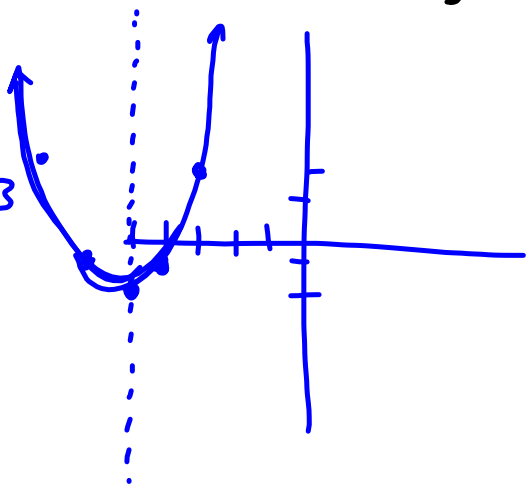
axis: $x = \frac{-B}{2A} = \frac{-10}{2} = -5$

V (-5, -2)

$25 - 50 + 23$

D $(-\infty, \infty)$

R $[-2, \infty)$



x	y
-4	-1
-3	2

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Ex 26 $f(x) = -3x^2 + 12x - 8$

$D(-\infty, \infty)$

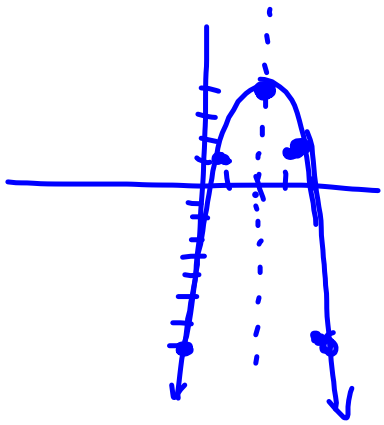
$R(-\infty, 4]$

axis: $x = \frac{-B}{2A} = \frac{-12}{-6} = 2$

$V(2, 4)$

$-12 + 24 - 8$

x	y
1	1
0	-8



Ex 34

1st # x

2nd # $60-x$

$x + \_\_\_\_ = 60$

$-x \qquad -x$

$\_\_\_\_ = 60-x$

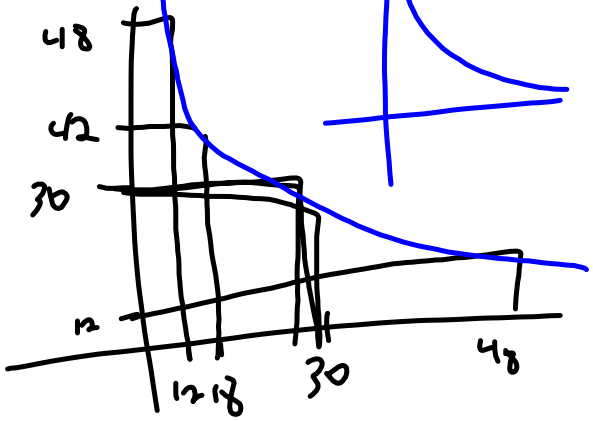
$P = x(60-x)$

$P = 60x - x^2$

$B \qquad A = -1$

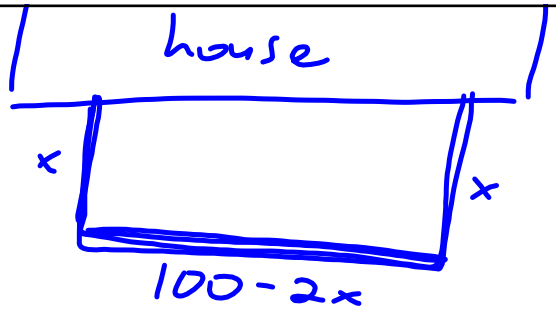
$x = \frac{-B}{2A} = \frac{-60}{-2} = 30$

$30 \cdot 30 = 900$



ex 96

100 ft



$A = x(100 - 2x)$

$A = 100x - 2x^2$

B A

$x = \frac{-B}{2A} = \frac{-100}{2(-2)} = \frac{-100}{-4} = 25$

$100 - 2(25)$

50

ex 38 $s(t) = -16t^2 + 400t$

$$t = \frac{-\beta}{2A} = \frac{-400}{-32} = 12.5 \text{ sec.}$$

max height $= s(12.5) = -2500 + 5000 = 2500$

ex 42 $C(x) = x^2 - 70x + 1500$

$x = \frac{-\beta}{2A} = \frac{70}{2} = 35$ units of froyo

$C(35) = 1225 - 2450 + 1500$

$= 275$

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11.1	2
11.2	4
11.3	4
11.4	4
11.5	
11.6	4
11.7	
13.2	2