P. 218 8) $\{\pm\sqrt{6}\}$ 12) $\{\pm i\sqrt{3}\}$

28) $\{-5,-3\}$ 29) $\{4\pm\sqrt{7}\}$ 30) $\{5\pm\sqrt{47}\}$

32) $\{-3\pm 2i\}$ 46) $\left\{\frac{5\pm\sqrt{33}}{4}\right\}$

pg 37: 51

$\frac{c^2-2c+4}{c}$

48) $\{3\pm\sqrt{6}\}$ 75) $\{-1\pm\sqrt{6}\}$

$x^2+8x=-15$

$x^2+8x+15=0$

$(x+5)(x+3)=0$

$x=-5 \quad x=-3$

$c^2\cdot c+\frac{8}{c^2}c^2$

$c^2+\frac{2}{c}$

$\frac{c^3+8}{c^2+2c} = \frac{(c+2)(c^2-2c+4)}{c(c+2)}$

Oct 6-6:28 PM

Graphs of Quadratic Functions

State the transformation from the original graph.

Translations:

Original: $y = x^2$ y_1

$y = x^2 + 3$ y_2 up 3

$y = (x-4)^2$ right 4 units

$y = (x+1)^2 - 2$ left 1 down 2 units

Rule: $f(x)+c \rightarrow$ up c units

$f(x)-c \rightarrow$ down c units

$f(x-c) \rightarrow$ right

$f(x+c) \rightarrow$ left

Oct 8-7:36 PM

Vertical Stretch & Compression:

Original: $y = x^2$

$y = 2x^2$ a Stretch 2 units Vertical

$y = \frac{x^2}{2}$ $a = \frac{1}{2}$ vertical Compression

Rule: $a>1$ $0<a<1$

Oct 6-10:24 AM

Reflections:

Original: $y = (x-4)^2$

$y = -(x-4)^2$ $y = (-x-4)^2$

Rule: $-f(x) \rightarrow$ reflection over x-axis

$f(-x)$ reflection over y-axis

Describe a sequence of transformations that will transform the graph of the function f into the function g.

1. $f(x) = x^2 + 4$ to $g(x) = (x+3)^2 + 1$

2. $f(x) = x^2$ to $g(x) = 2(x-1)^2 + 3$

Oct 6-10:25 AM

As Transformations:

Parent graph: $y = x^2$ Parabola

Standard form $y = a(x-h)^2 + k$

$a \rightarrow$ turns up ($a+$) or down ($a-$)

$h \rightarrow$ right ($-$) or left ($+$)

$k \rightarrow$ up ($+$) or down ($-$)

(h, k) $\rightarrow$ vertex

aos $\rightarrow x = h$

minimum or maximum occurs at the vertex

if a > 0 graph contains a relative minimum (opens up)

if a < 0 graph contains a relative maximum (opens down)

Oct 8-7:41 PM

Describe the transformation(s) from the parent graph $y = x^2$ to the new graph.

1. $y = (x+2)^2 - 1$

2. $y = -2(x-1)^2 + 3$

Oct 11-7:06 AM

General Form:

$y = ax^2 + bx + c$, $a \neq 0$

aos → $x = \frac{-b}{2a}$

vertex → $\left(\frac{-b}{2a}, f\left(\frac{-b}{2a}\right)\right)$

Oct 8-7:42 PM

For each of the equations below, find the following:

a. aos *d. sketch*

b. vertex *e. range*

c. state maximum or minimum *f. intervals where increasing & decreasing*

3. $g(x) = x^2 + 2x + 6$ general form

a) aos: $x = \frac{-2}{2(1)}$ $x = -1$

b) $(-1, 5)$ find y: $g(-1) = (-1)^2 + 2(-1) + 6$, $g(-1) = 5$

c) ∨ min

d) 

e) $[5, \infty)$

f) $(-1, \infty)$ inc, $(-\infty, -1)$ dec

4. $f(x) = -x^2 - 8x + 5$ $a = -1$ $b = -8$ $c = 5$

a) aos $x = \frac{8}{2(-1)}$ $x = -4$

b) $(-4, 21)$ find y $-(-4)^2 - 8(-4) + 5$, $-(16) + 32 + 5$

c) ∧ max

d) 

e) $(-\infty, 21]$

f) inc $(-\infty, -4)$ dec $(-4, \infty)$

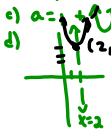
Oct 8-7:42 PM

5. $g(x) = (x - 2)^2 + 3$ standard form $a(x-h)^2 + k$

a) aos: $x = h$, $x = 2$

b) v: (h, k), $(2, 3)$

c) $a > 0$ ∪ min

d) 

e) Range: $[3, \infty)$

inc: $(2, \infty)$

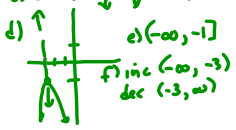
dec: $(-\infty, 2)$

6. $f(x) = -2(x + 3)^2 - 1$ $a(x-h)^2 + k$

a) $x = h \rightarrow x = -3$

b) v (h, k) $(-3, -1)$

c) $a < -2$ ∩ max

d) 

e) $(-\infty, -1]$

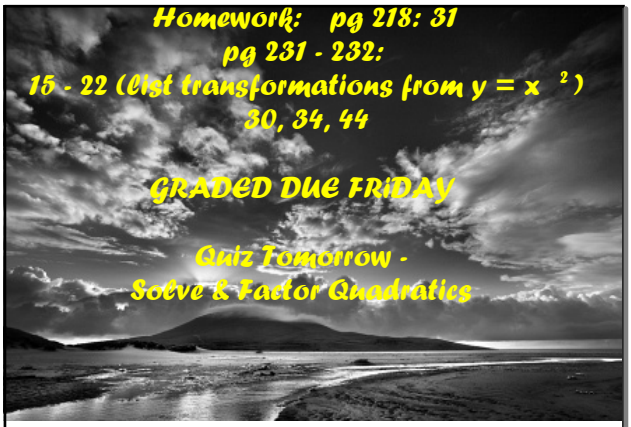
f) inc $(-\infty, -3)$ dec $(-3, \infty)$

Oct 8-7:43 PM

From Text pg 233: 51

A rancher needs to enclose two adjacent rectangular corrals, one for cattle and one for sheep. If a river forms one side of the corral and 240 yards of fencing is available, what is the largest total area that can be enclosed?

Oct 8-7:44 PM



Oct 8-7:51 PM