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) $\left\{\frac{5\pm\sqrt{33}}{4}\right\}$

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

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

$x^2-6x+3=0$

$(-6)^2-4(1)(3)=36-12$

$=24$

$x=\frac{6\pm\sqrt{24}}{2}=\frac{6\pm2\sqrt{6}}{2}$

$=3\pm\sqrt{6}$

$$\frac{\frac{c^2}{1}\left(c+\frac{8}{c^2}\right)\frac{c^2}{1}}{\frac{c^2}{1}\left(1+\frac{2}{c}\right)\frac{c^2}{1}}$$

$$\frac{c^3+8}{c^2+2c}$$

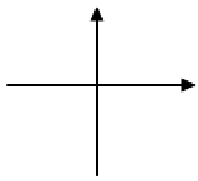
Oct 6-6:28 PM

Transformation Reference Sheet

State the transformation from the original graph.

Translations:

Original: $y = x^2$



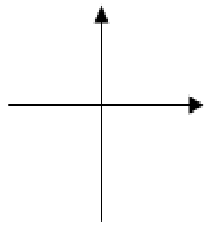
$y = x^2 + 3$ $y = (x-4)^2$ $y = (x+1)^2 - 2$

Rule:

Oct 8-7:36 PM

Vertical Stretch & Compression:

Original: $y = x^2$



$y = 2x^2$

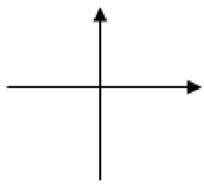
$y = \frac{x^2}{2}$

Rule:

Oct 6-10:24 AM

Reflections:

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



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

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

Rule:

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: $y = x^2$

Vertex Form $y = a(x - h)^2 + k$ $(x-(h))^2$

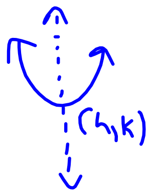
opposite

same

$a \rightarrow$ vertical stretch or compression $a > 1$ $0 < a < 1$

$h \rightarrow$ horizontal shift left or right

$k \rightarrow$ vertical shift up or down



$(h, k) \rightarrow$ vertex of the parabola

aos $\rightarrow$ $x=h$ (line)

minimum or maximum occurs at the vertex

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

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

Oct 8-7:41 PM

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

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

2. $y = x^2$
$y = -2(x - 1)^2 + 3$
① Vertical Stretch of 2
② r x-axis
③ right 1
④ up 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 must be a line

b. vertex point

c. state maximum or minimum

d. sketch

e. range

f. intervals where increasing & decreasing

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

4. $f(x) = -x^2 - 8x + 5$

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

$x = -4$

(b) $f(-4) = -(-4)^2 - 8(-4) + 5$

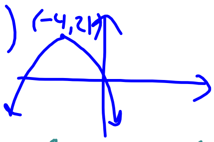
$= -16 + 32 + 5$

$= 21$

$(-4, 21)$

(c) $\cap$ maximum $a < 0$

(d)



$-\infty \rightarrow -4 \rightarrow \infty$

$+ \quad -$

(e) $(-\infty, 21]$

(f) I: $(-\infty, -4)$

D: $(-4, \infty)$

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5. $g(x) = (x - 2)^2 + 3$

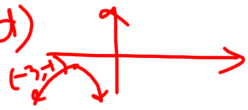
6. $f(x) = -2(x + \overset{h}{3})^2 - \overset{k}{1}$

(a) $x = h \quad x = -3$

(b) $(-3, -1)$

(c) $a < 0$ ∩ maximum

(d)



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

(f) I: $(-\infty, -3)$

D: $(-3, \infty)$

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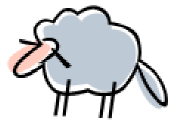
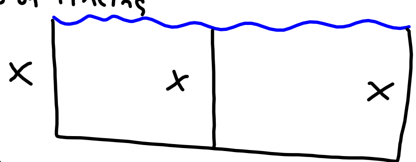
From Text pg 233: 51

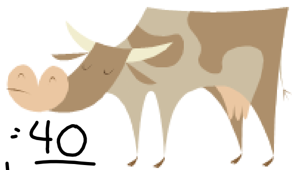


A rancher needs to enclose two adjacent rectangular corrals, one for cattle and one for sheep. If a river forms one side of the corral and 240 yards of fencing is available, what is the largest total area that can be enclosed?

240 yds of fencing



$A = l \cdot w$

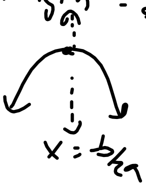


Let x = width = 40

$240 - 3x$ = length ∴ $240 - 120 = 120$

$A = x(240 - 3x) = 240x - 3x^2$

$x = \frac{-b}{2a} = \frac{-240}{2(-3)} = 40$



$A = 40(120)$

$A = 4800$ sq yds

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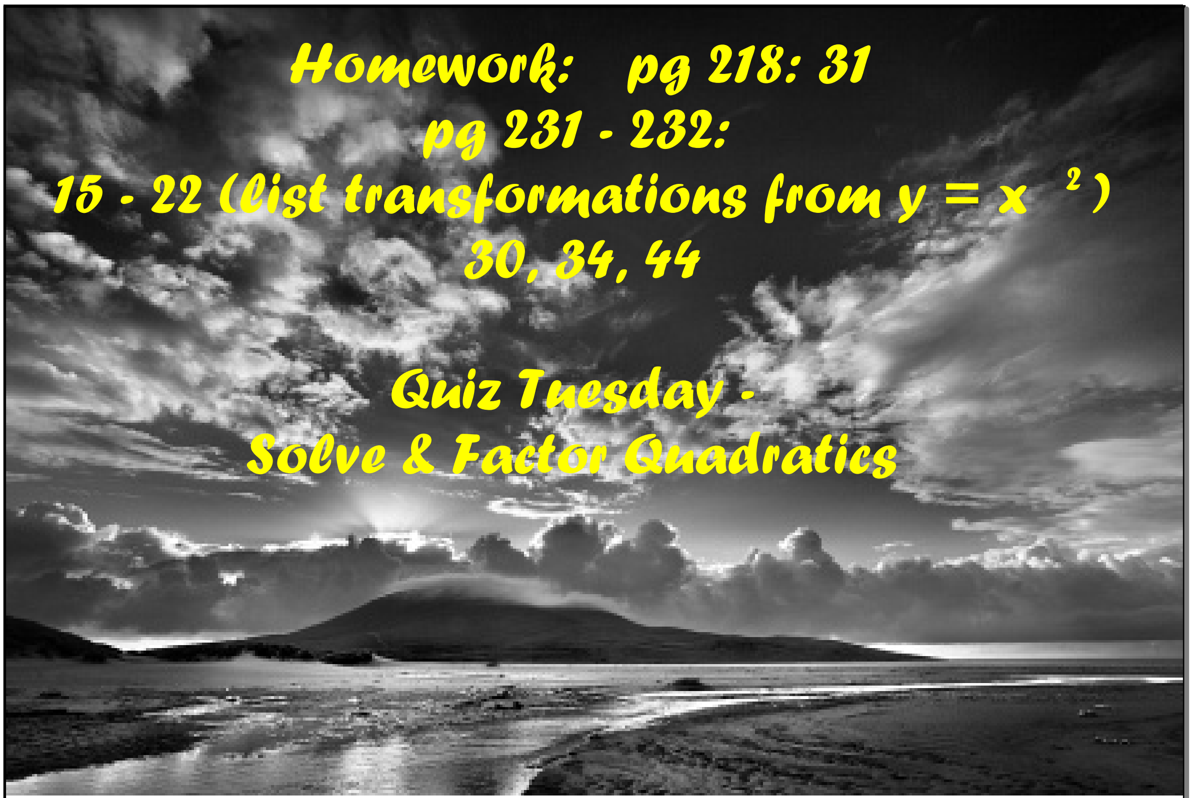
Homework: pg 218: 31
pg 231 - 232:
15 - 22 (list transformations from y = x ²)
30, 34, 44
Quiz Tuesday -
Solve & Factor Quadratics

Oct 8-7:51 PM