

PRE-CALCULUS

Assignment# Key

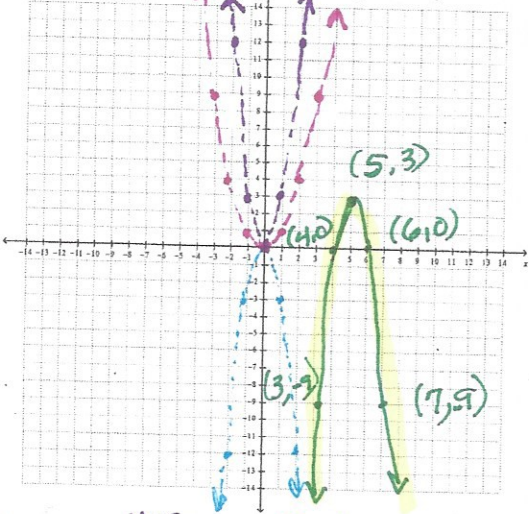
Practice Quiz 1.6-1.7

Name _____

Date _____

Per _____

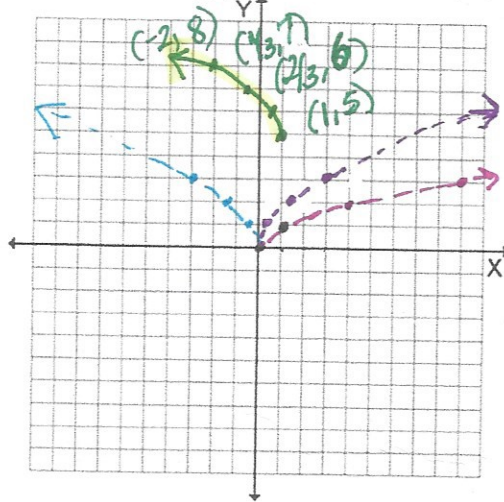
1) Graph: $h(x) = -3(x-5)^2 + 3$



P.F	VERT. Stretch	Ref
$(0,0) \rightarrow$	$(0,0) \rightarrow$	$(0,0)$
$(1,1) \rightarrow$	$(1,3) \rightarrow$	$(1,-3)$
$(2,4) \rightarrow$	$(2,12) \rightarrow$	$(2,-12)$
$(3,9) \rightarrow$	$(3,27) \rightarrow$	$(3,-27)$
$(-1,1) \rightarrow$	$(-1,3) \rightarrow$	$(-1,-3)$
$(-2,4) \rightarrow$	$(-2,12) \rightarrow$	$(-2,-12)$
$(-3,9) \rightarrow$	$(-3,27) \rightarrow$	$(-3,-27)$

P.F	HOR. SHRNK	Ref
$(0,0) \rightarrow$	$(0,0) \rightarrow$	$(0,0)$
$(1,1) \rightarrow$	$(\frac{1}{3}, 1) \rightarrow$	$(-\frac{1}{3}, 1)$
$(4,2) \rightarrow$	$(\frac{4}{3}, 2) \rightarrow$	$(-\frac{4}{3}, 2)$
$(9,3) \rightarrow$	$(3, 3) \rightarrow$	$(3, 3)$

2) Graph: $g(x) = \sqrt{-3x+3} + 5$



3-4 Find the domain in interval notation of the composite function $f(g(x))$.
(Justify your answer by showing all the work neatly).

3) $f(g(x))$ given $f(x) = \frac{5}{x+4}$ and $g(x) = \frac{1}{x}$.

$$f(g(x)) = \frac{5}{\frac{1}{x} + 4} = \frac{5}{\frac{1+4x}{x}} = \frac{5x}{1+4x} = 5 \cdot \frac{x}{1+4x}$$

$x \neq 0, x \neq -\frac{1}{4}$

5) Find the domain of: $f(x) = \frac{\sqrt{2x-3}}{2x-3}$.

$$2x-3 \geq 0 \quad 2x-3 \neq 0$$

$$2x \geq 3 \quad x \neq \frac{3}{2}$$

$$x \geq \frac{3}{2}$$

7) Find the domain of: $f(x) = \frac{\sqrt{x-2}}{x-5}$

$$x-2 \geq 0 \quad x-5 \neq 0$$

$$x \geq 2 \quad x \neq 5$$

9) Decompose: $f(x) = \sqrt[3]{2x-5}$

9. $g(x) = \sqrt[3]{x} \quad h(x) = 2x-5$

1) a) Is there a vertical or horizontal stretching or shrinking? If so, which one?

VERTICAL STRETCHING

b) What action do you need to take for a) above?

Multiply y-coord by 3

c) Determine the parent function

$f(x) = x^2$

d) Is there a reflection? If so, about what?

Yes ABOUT X-AXIS

e) What is the phase shift, if any?

$PS = 5$

f) What is the vertical shift, if any?

$VS = 3$

2) a) Is there a vertical or horizontal stretching or shrinking? If so, which one?

HORIZONTAL SHRINKING

b) What action do you need to take for a) above?

DIVIDE EACH X-COOR by 3

c) Determine the parent function

$f(x) = \sqrt{x}$

d) Is there a reflection? If so, about what?

Yes ABOUT Y-AXIS

e) What is the phase shift, if any?

$PS = 1$

f) What is the vertical shift, if any?

$VS = 5$

3) $(-\infty, -\frac{1}{4}) \cup (-\frac{1}{4}, 0) \cup (0, \infty)$

4) $(-\infty, -\frac{6}{5}) \cup (-\frac{6}{5}, 0) \cup (0, \infty)$

5) $(\frac{3}{2}, \infty)$

6) $(-\infty, 14]$

7) $[2, 5) \cup (5, \infty)$

8) a) $14x^2 - 62$ b) $98x^2 + 28x - 7$

4) $f(x) = \frac{x}{x+5}$ and $g(x) = \frac{6}{x}$.

$$f(g(x)) = \frac{\frac{6}{x}}{\frac{6}{x} + 5} = \frac{\frac{6}{x}}{\frac{6+5x}{x}} = \frac{6}{6+5x}$$

$$= \frac{6}{x} \cdot \frac{x}{6+5x} = \frac{6}{6+5x} \quad x \neq 0 \quad x \neq -\frac{6}{5}$$

6) Find the domain of $g(x) = \sqrt{84-6x}$

$$84-6x \geq 0$$

$$84 \geq 6x \rightarrow x \leq 14$$

$$14 \geq x$$

8) Find a) $f(g(x))$ and b) $g(f(x))$ given

$f(x) = 7x + 1$ and $g(x) = 2x^2 - 9$.

a) $f(g) = 7(2x^2-9)+1 = 14x^2-63+1 = 14x^2-62$

b) $g(f) = 2(7x+1)^2-9 = 2(49x^2+14x+1)-9 = 98x^2+28x+2-9 = 98x^2+28x-7$