SECTION 1.3 PART I 1/3/5/10/13/23 27 AUG 08

LESSON 5 NEW FUNCTIONS FROM OLD

① GRAPH OF f IS GIVEN

a) SHIFT UP 3 UNITS

$$\boxed{g(x) = f(x) + 3}$$

b) SHIFT DOWN 3 UNITS

$$\boxed{g(x) = f(x) - 3}$$

c) SHIFT RIGHT 3 UNITS

$$\boxed{g(x) = f(x-3)}$$

d) SHIFT LEFT 3 UNITS

$$\boxed{g(x) = f(x+3)}$$

e) REFLECT ABOUT X-AXIS

$$\boxed{g(x) = -f(x)}$$

f) REFLECT ABOUT Y-AXIS

$$\boxed{g(x) = f(-x)}$$

g) STRETCH VERTICALLY BY FACTOR OF 3

$$\boxed{g(x) = 3f(x)}$$

h) SHRINK VERTICALLY BY A FACTOR OF 3

$$\boxed{g(x) = \tfrac{1}{3}f(x)}$$

③

a) GRAPH 3, MOVED RIGHT 4 UNITS, $g(x) = f(x-4)$

b) GRAPH 1, MOVED UP 3 UNITS, $g(x) = f(x) + 3$

c) GRAPH 4, SHRUNK VERTICALLY BY A FACTOR OF 3, $g(x) = \frac{1}{3}f(x)$

d) GRAPH 5, SHIFTED LEFT 4 UNITS, FLIPPED ABOUT X-AXIS, $g(x) = -f(x+4)$

e) GRAPH 2, SHIFTED LEFT 6 UNITS, STRETCHED VERTICALLY BY A FACTOR OF 2

$$g(x) = 2f(x+6)$$

LESSON 5

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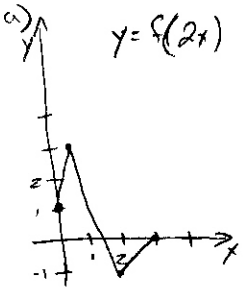
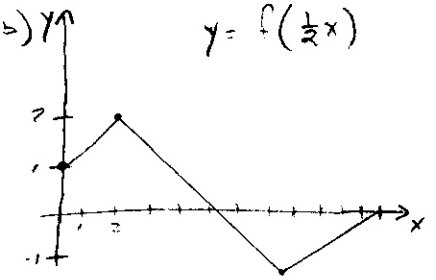
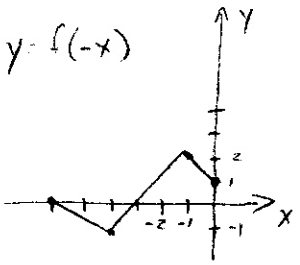
(5) a) $y = f(2x)$



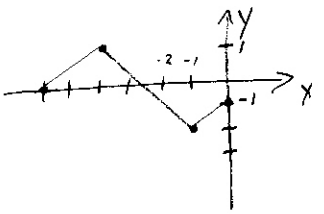
b) $y = f(\frac{1}{2}x)$



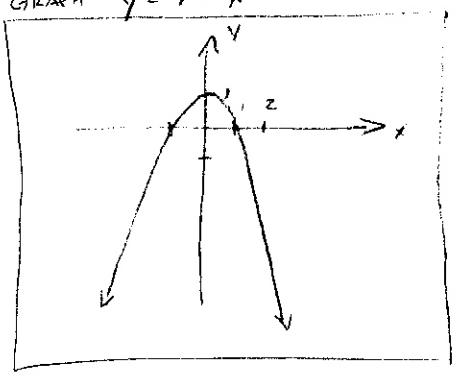
c) $y = f(-x)$



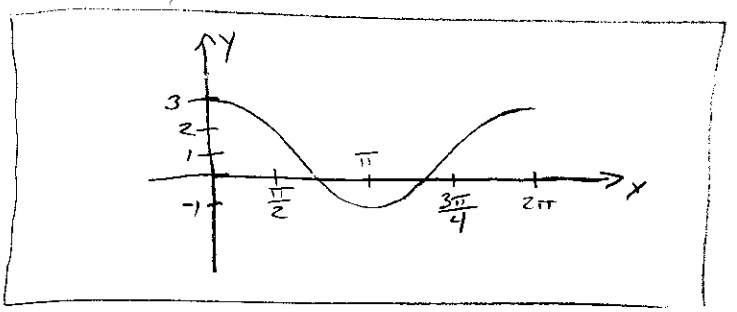
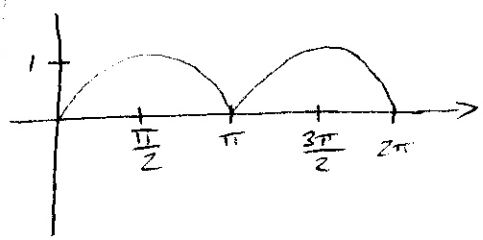
d)



10) GRAPH $y = 1 - x^2$



(13) GRAPH $y = 1 + 2\cos x$



(23) GRAPH $y = |\sin x|$