

1.7 Homework

9) $0.60x$

12) $2800(1.09) + \$19.85x$

15) $V = 2\pi r^3$

18) $A = s^2$

21) $y = 124$
 $x = 496$

27) $\$19.80$ ~~$\$33$~~ shirt
 $\$20.25$

32) 15 of 20%
10 of 35%

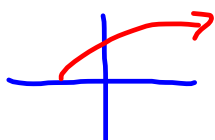
36) 12×15

39) 11.42 mph

No Calc: $\left\{ \begin{array}{l} 42) F \\ 43) C \\ 44) A \end{array} \right.$

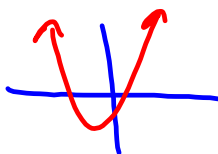
45) B
46) E

1) $y = \sqrt{x+2}$



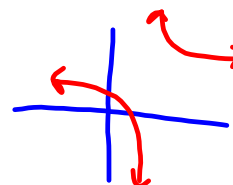
YES

$y = 3x^2 + 5x - 1$

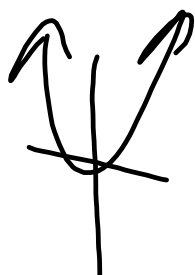


NO

$y = \frac{5x-1}{2x-3}$



YES

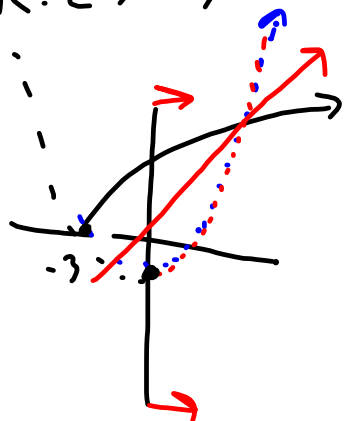
Passes both horizontal/vertical
line test

$$2) f(x) = 2\sqrt{x+3}$$

orig

$$D: [-3, \infty)$$

$$R: [0, \infty)$$



$$f^{-1}(x) =$$

$$x = 2\sqrt{y+3}$$

$$\frac{x}{2} = \sqrt{y+3}$$

$$\frac{x^2}{4} = y+3$$

$$y = \frac{x^2}{4} - 3$$

INV

$$D: [0, \infty)$$

$$R: [-3, \infty)$$

Roots
↓
Restrictions

$$3) f(x) = \frac{1}{4}x - 3$$

$$g(x) = \underline{4x + 12}$$

$$f(\underline{g(x)}) = \frac{1}{4}(4x+12) - 3$$

$$= x + 3 - 3$$

$$= x$$

$$g(f(x)) = 4\left(\frac{1}{4}x - 3\right) + 12$$

$$= x - 12 + 12$$

$$= x$$

$$4) \quad a) \quad (f \circ g)(x) = \frac{1}{2x-5+3} = \frac{1}{2x-2} \quad \begin{array}{l} 2x-2=0 \\ 2x=2 \\ x=1 \end{array}$$

$$D: (-\infty, 1) \cup (1, \infty)$$

$$b) \quad g(g(x)) = 2(2x-5) - 5 \\ = 4x - 10 - 5 \\ = 4x - 15 \quad D: (-\infty, \infty)$$

$$c) \quad \left(\frac{g}{f}\right)(x) = \frac{2x-5}{\frac{1}{x+3}} \quad D: (-\infty, -3) \cup (-3, \infty)$$

$$= (2x-5)(x+3) \\ = 2x^2 + 6x - 5x - 15 \\ = 2x^2 + x - 15$$

$$d) \quad (g \circ f)(-2) =$$

$$f(-2) = \frac{1}{-2+3} \\ = \frac{1}{1} \\ = 1$$

$$g(1) = 2(1) - 5 \\ = 2 - 5 \\ = -3$$

$$\frac{2x-5}{\frac{1}{x+3}}$$

$$(2x-5) \left(\frac{x+3}{1} \right) =$$

$$5) \quad y = x^2$$

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

$$6) \quad y = |x+3|$$

$$y = |-x-2| + 4$$

reflect y-axis

4 units up

5 units right

X's lie so you always know x

$$7) \quad g(f(x)) = \frac{5}{x+3} \quad g(x) = \frac{5}{x}$$

Ex 1

$$f(x) = x+3$$

$$\text{Ex 2} \quad g(f(x)) = \frac{(x+3)^2}{5}$$

$$g(x) = \frac{x^2}{5}$$

$$f(x) = x+3$$

$$8) \quad f(x) = 3x^4 + 2x - 7$$

$$f(-x) = 3(-x)^4 + 2(-x) - 7 \quad \text{reflect } y$$

$$= 3x^4 - 2x - 7$$

$$-f(x) = -3x^4 - 2x + 7 \quad \text{reflect } x$$

$$9) \quad .3x + .1(10-x) = 10(.15)$$

$$.3(10-x) + .1x = 10(.15)$$

$$.3x + 1 - .1x = 1.5$$

$$.2x = .5$$

$$x = 2.5 \text{ gall}$$

$$30\%$$

$$\begin{array}{r} 10 \\ - 2.5 \\ \hline 7.5 \text{ gall } 15\% \end{array}$$

$$10) \quad x = 3t - 2 \quad t \quad -2 \leq t \leq 2$$

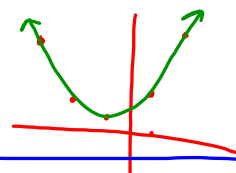
$$y = t^2 + 1$$

t	x	y
-2	-8	5
-1	-5	2
0	-2	1
1	1	2
2	4	5

$$b) \quad x = 3t - 2$$

$$\frac{x+2}{3} = \frac{3t}{3}$$

$$t = \frac{x+2}{3}$$



$$y = \left(\frac{x+2}{3}\right)^2 + 1$$

$$= \frac{(x+2)^2}{3^2} + 1$$

$$= \frac{x^2 + 4x + 4}{9} + 1$$

$$= \frac{x^2}{9} + \frac{4x}{9} + \frac{4}{9} + 1 \frac{9}{9}$$

$$= \frac{x^2}{9} + \frac{4x}{9} + \frac{13}{9}$$

$$\frac{x^2 + 4x + 13}{9}$$

