

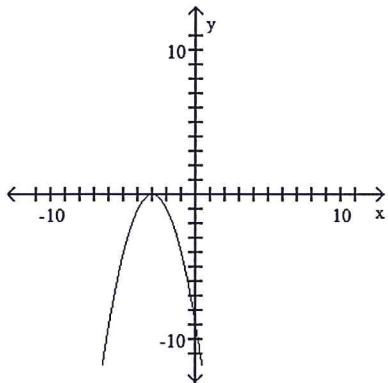
Name Key

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Match the function with the graph.

1)

1) D



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

B) $g(x) = -x^2 + 3$

C) $g(x) = (x - 3)^2$

D) $g(x) = -(x + 3)^2$

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Confirm that f and g are inverses by showing that $f(g(x)) = x$ and $g(f(x)) = x$.

2) $f(x) = \frac{x+4}{6}$ and $g(x) = 6x - 4$

2) _____

$6\left(\frac{x+4}{6}\right) - 4 = x$

$6\left(\frac{x+4}{6}\right) - 4 = x$ YES

Determine algebraically whether the function is even, odd, or neither even nor odd.

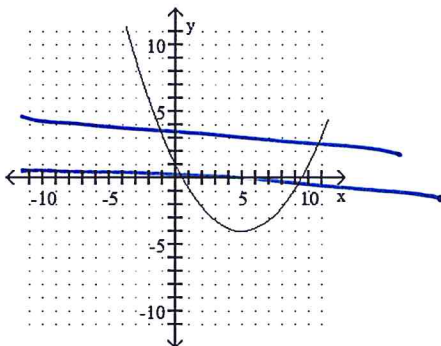
3) $f(x) = -2x^3 + 8x$

3) odd

Determine if the function is one-to-one.

4)

4) _____



no fails Hon. test

Find a direct relationship between x and y.

5) $x = 3\sqrt{t}$ and $y = 2t + 6$

Handwritten work:
 $x = 3\sqrt{t}$
 $(\frac{x}{3})^2 = (\sqrt{t})^2$
 $2(\frac{x^2}{9}) + 6 \rightarrow$

5) _____

Find the domain of the given function.

6) $f(x) = \frac{\sqrt{x+5}}{(x+7)(x-2)}$

Handwritten work:
 $x+5 \geq 0$
 $x \geq -5$
 $x \neq -7$
 $x \neq 2$

6) _____

Find the inverse of the function.

7) $f(x) = \sqrt{3x+8}$

Handwritten work:
 $x = \sqrt{3y+8}$
 $x^2 = 3y+8$
 $x^2 - 8 = 3y$
 $\frac{x^2 - 8}{3} = y$

7) _____

Find the range of the function.

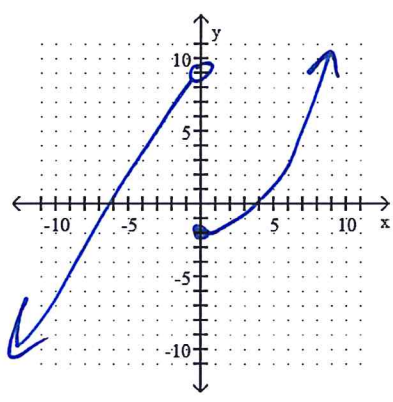
8) $f(x) = \sqrt{8+x}$

Handwritten work:
 $y \geq 0$

8) _____

Graph the piecewise-defined function.

9)
$$y(x) = \begin{cases} 2x + 9, & \text{if } x < 0 \\ 2x^2 - 2, & \text{if } x \geq 0 \end{cases}$$



9) _____

Identify which of the twelve basic functions listed below fit the description given.

Handwritten work: $y = x$, $y = x^2$, $y = x^3$, $y = |x|$, $y = \frac{1}{x}$, $y = e^x$, $y = \sqrt{x}$, $y = \ln x$, $y = \sin x$, $y = \cos x$, $y = \text{int}(x)$, $y = \frac{1}{1+e^{-x}}$

10) The four functions that are increasing on the interval $(-\infty, 0)$

10) _____

JC.

Perform the requested operation or operations.

11) $f(x) = \sqrt{x+2}$; $g(x) = 8x - 6$
Find $f(g(x))$.

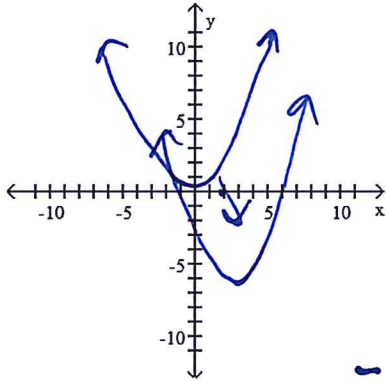
$\sqrt{8x-6}+2 \rightarrow \sqrt{8x-4}$

11) _____

Sketch the graph of y_1 as a solid line or curve. Then sketch the graph of y_2 as a dashed line or curve by one or more of these: a vertical and/or horizontal shift of the graph y_1 , a vertical stretch or shrink of the graph of y_1 , or a reflection of the graph of y_1 across an axis.

12) $y_1 = x^2$; $y_2 = (x-2)^2 - 4$

12) _____



$$\frac{-(-9) \pm \sqrt{9^2 - 4(2)(9)}}{2(2)}$$

$$\frac{9 \pm \sqrt{81 - 72}}{4}$$

$$7(.04) + .1x = .06(x+7)$$

$$.28 + .1x = .06x + .42$$

$$.04x = .14$$

$$x = 3.5$$

Solve the equation algebraically.

13) $x(2x - 9) = -9$

$$2x^2 - 9x = -9$$

$$2x^2 - 9x + 9 = 0$$

Solve the problem.

14) In a chemistry class, 7 liters of a 4% silver iodide solution must be mixed with a 10% solution to get a 6% solution. How many liters of the 10% solution are needed?

14) _____

Use an equation to solve the problem.

15) When a number, half of the number, and a third of the number are added together, the sum is 297. Find the three numbers.

15) _____

$$1x + \frac{x}{2} + \frac{x}{3} = 297$$

$$\frac{6x}{6} + \frac{3x}{6} + \frac{2x}{6} = \frac{11x}{6} = 297$$

$$x = \frac{297 \cdot 6}{11}$$

$$x = 162, 81, 54$$

$$x = 162$$

16) Joe Pearlman received a 3.25% pay decrease. His salary after the decrease was \$28,057.50. What was his salary before the decrease?

16) _____

$$.9675x = \frac{28,057.50}{.9675}$$

$$x = \$29,000$$