

Review 6.1-6.4

1) Let $f(x) = -x^2 + 4x + 1$, and $g(x) = \sqrt{x+2}$ find the following:

a) Domain of $f(x)$

b) Domain of $g(x)$

c) $f(0)$

d) $g(16)$

e) $f(-1)$

f) $g(23)$

g) $f(g(2))$

h) $g(f(2))$

i) $f(g(x))$

j) $g(f(x))$

k) $f(f(-3))$

l) $g(g(81))$

m) $f(a+h)$

n) $\frac{f(a+h)-f(a)}{h}$

- 2) **Temperature Conversion** The formula to convert temperatures from degrees Celsius to Fahrenheit is $F = \frac{9}{5}C + 32$. Write the inverse function, which converts temperatures from Fahrenheit to Celsius. What is the Celsius temperature that is equal to 94 degrees Fahrenheit?

3) Find the inverse of the function. Verify your answer.

a) $f(x) = 3 - 2x$

b) $g(x) = \frac{4-x}{3x}$

c) $h(x) = \sqrt[3]{5x+4}$

4) On a certain day, the function that gives Japanese yen in terms of U.S. dollars is $y = 110.16d$ where y represents yen and d represents dollars.

a) Find the inverse function.

b) How many dollars do you receive for 412 yen?

c) The function that gives Indian rupees in terms of U.S. dollars is $r = 43.94d$ where r represents rupees and d represents dollars. How many rupees do you receive for 529 yen?

5) Use the table below to answer each of the following questions.

x	0	1	2	3
$f(x)$	2	3	5	10
$g(x)$	5	3	1	0

a) $g(f(0))$

b) $f(g(2))$

c) $f^{-1}(2)$

d) $g^{-1}(0)$

6) Let $f(x) = 2x^2 + 3x + 1$ Find

a) $f(a)$

b) $f(a + h)$

c) $f(a + h) - f(a)$

d) $\frac{f(a+h)-f(a)}{h}$

7) Write the expression in the simplest form:

a) $\sqrt{36x^5}$

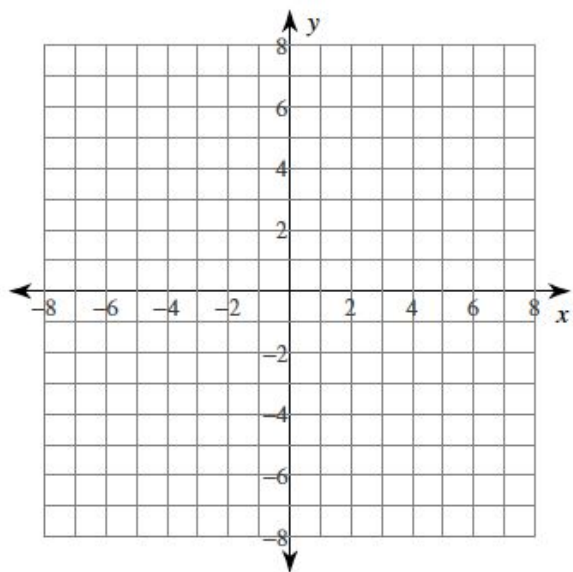
b) $\sqrt[3]{x^4y^6z}$

8) Simplify. Assume all variables are positive.

a) $\sqrt[3]{81x^7}$

b) $\sqrt[5]{64x^7y^{15}z^{21}}$

9) Graph the function $y = -\sqrt{x-4}-2$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$

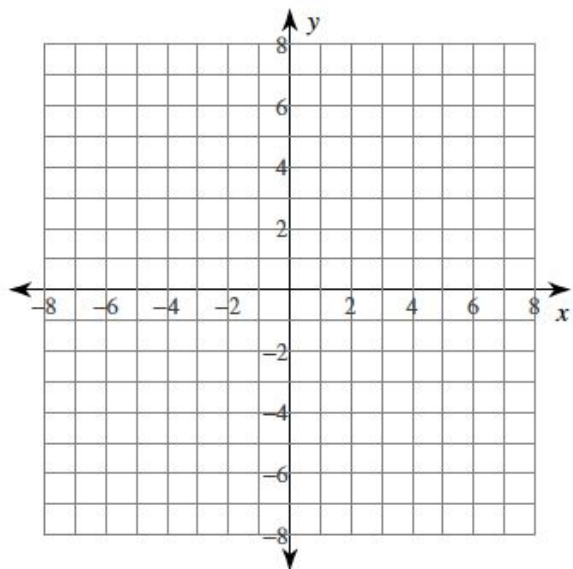


Domain: _____

Range: _____

Transformations: _____

13) Graph the function $y = \frac{1}{2}\sqrt{x+1} + 4$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$

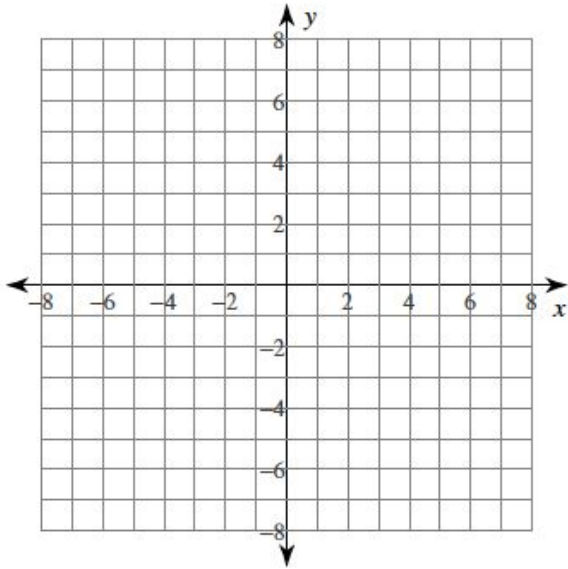


Domain: _____

Range: _____

Transformations: _____

14) Graph the function $y = 2\sqrt{x} + 3$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$

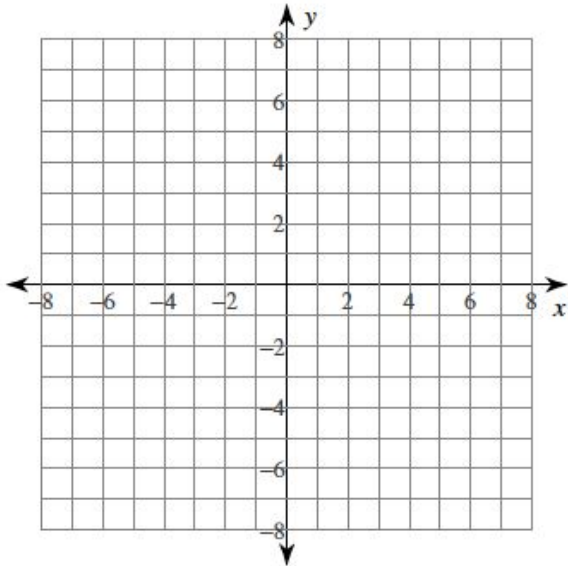


Domain: _____

Range: _____

Transformations: _____

15) Graph the function $y < \sqrt{x-5}$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$

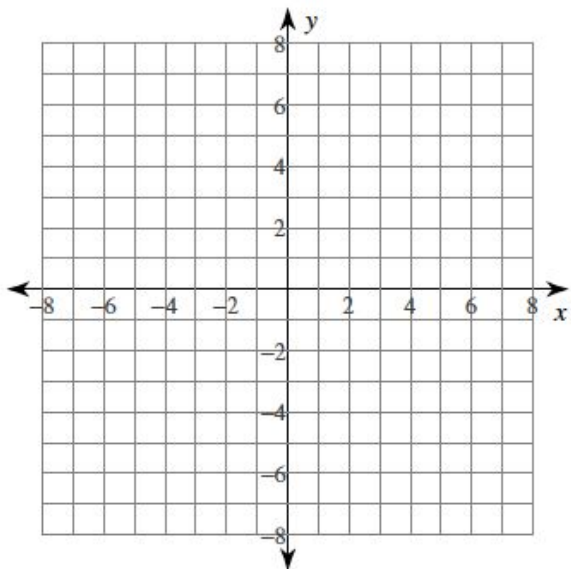


Domain: _____

Range: _____

Transformations: _____

16) Graph the function $y \geq \sqrt{x+4} - 5$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$

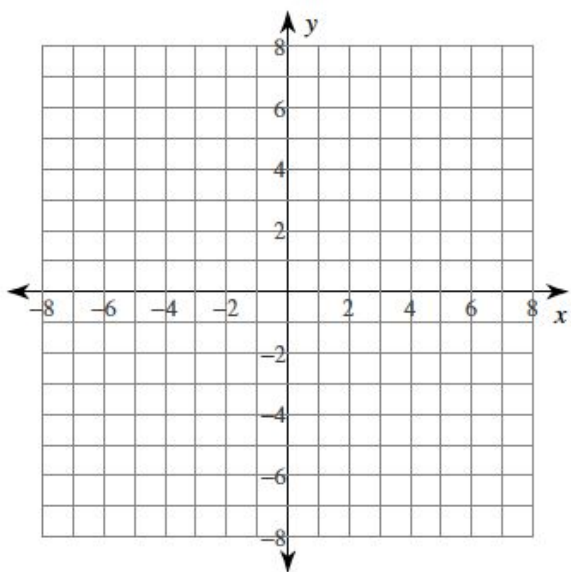


Domain: _____

Range: _____

Transformations: _____

17) Graph the function $y > -2\sqrt{x}$. Find the domain and range. Describe the transformations from the parent function $y = \sqrt{x}$



Domain: _____

Range: _____

Transformations: _____

18) Simplify the following:

a) $\pm \sqrt{121a^4b^{18}}$

d) $\sqrt[5]{-(y-6)^{20}}$

b) $\sqrt{(x^4+3)^{12}}$

e) $\sqrt[3]{8(x+4)^6}$

c) $\sqrt[3]{27(2x-5)^{15}}$

f) $\sqrt[4]{16(y+x)^8}$