

$\sqrt{2x+5} = \sqrt{x+7}$   
 $(x-4)^{2/3} - 9 = 16$   
 $x = 2$   

129
-121

Name: \_\_\_\_\_  
Date: \_\_\_\_\_

Chapter 6 Practice Test

442 8,34

26  
34

1) Simply the expressions below as far as possible.

a.  $r^{2/7} \cdot r^{2/7}$   
 $r^{4/7}$

b.  $3\sqrt{xr^3} - \sqrt{xr^3} + 2\sqrt{xr^3}$   
 $4\sqrt{xr^3}$

c.  $(64m^{15})^{1/3}$   
 $4m^5$

d.  $\left(\frac{x^5}{x^2}\right)^3 = x^9$

e.  $\sqrt[4]{625m^4n^{16}}$

f.  $\sqrt[5]{3x^{12}y^{15}z^8} = \sqrt[5]{3 \cdot x^{10} \cdot x^2}$   
 $x^2 y^3 z \sqrt[5]{x^2 z^3}$

2) Perform the following function operations and compositions, and then state the domain of the new function (except for part c) given the following:

$f(x) = 5x^{-1}$        $g(x) = x - 3$        $h(x) = 5x + 2$        $j(x) = \sqrt[4]{x}$

a.  $g(x) - h(x) = \underline{-4x - 5}$

b.  $f(g(x)) = \underline{\frac{5}{x-3}}$

domain: IR

domain:  $x \neq 3$

c.  $g(h(3)) = \underline{14}$

d.  $\frac{j(x)}{g(x)} = \underline{\frac{\sqrt[4]{x}}{x-3}}$

domain: ~~IR~~  
 $x \geq 0$  except  $x \neq 3$

domain: \_\_\_\_\_

3) Solve the following equations for the variable x:

a.  $\sqrt{(x)} + 4 = 8$

x = 16

b.  $2(x+1)^3 = 16$

x = 1

c.  $\sqrt[4]{(x-2)} + 2 = 3$

x = 3

d.  $x^{\frac{5}{3}} = 243$

x = 27

4) a.  $7\sqrt{(x)} + 4 = 8$

x =  $\frac{16}{49}$

b.  $(2x+12)^{\frac{2}{3}} - 3 = 13$   
 $(2x+12)^{\frac{2}{3}} = 16$

$2x+12 = 64 \downarrow$

x = ~~26~~ - 38

$2x+12 = -6$

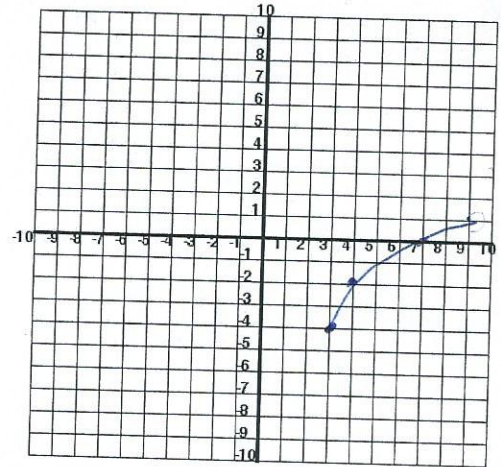
c.  $\sqrt{x-3} = \sqrt{2x-7}$

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

x = 4

9)  $y = 2\sqrt{(x-3)} - 4$

Graph:



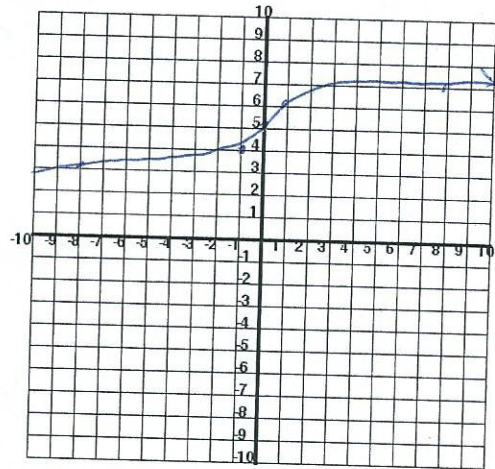
Domain and Range:

$D: x \geq 3$

$R: y \geq -4$

10)  $f(x) = \sqrt[3]{(x)} + 5$

Graph:



Domain and Range:

$D: \mathbb{R}$

$R: \mathbb{R}$