Study Guide Radical Functions Name _____

Write each expression in radical form.

1) $(3n)^{\frac{7}{4}}$

2) $(6b)^{\frac{1}{2}}$

3) $(2v^3)^{\frac{1}{6}}$

4) $(10x)^{\frac{4}{5}}$

Write each expression in exponential form.

5) $(\sqrt{x})^3$

6) $(\sqrt{7n})^5$

7) $\sqrt[3]{p}$

8) $(\sqrt{n})^5$

Simplify.

9) $(25r^4)^{\frac{3}{2}}$

10) $(r^4)^{\frac{3}{2}}$

11) $(49n^2)^{\frac{3}{2}}$

12) $(81a^6)^{\frac{3}{2}}$

13) $(216x^6)^{\frac{2}{3}}$

14) $(n^4)^{\frac{1}{2}}$

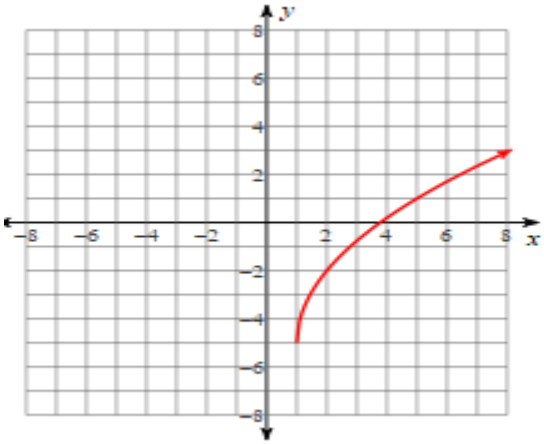
15) $(64n^9)^{\frac{2}{3}}$

16) $(64r^2)^{\frac{1}{2}}$

17) $(p^3)^{\frac{4}{3}}$

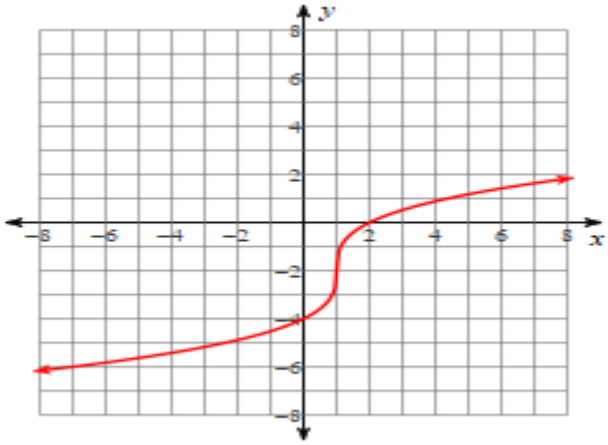
18) $(x^{12})^{\frac{3}{4}}$

19)

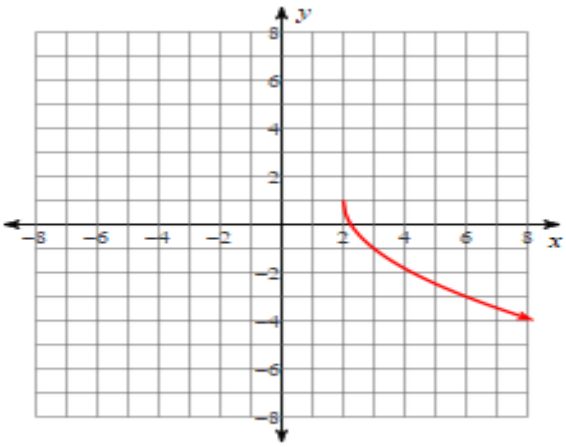


Increase or Decrease	[____, ____)	Increase or Decrease	(____, ____)
Absolute Max/Min	(____, ____)	Absolute Max/Min	None
Domain	[____, ____)	Domain	(____, ____)
Range	[____, ____)	Range	(____, ____)
End Behavior		End Behavior	
LEFT: As x→ -∞, y → NA	RIGHT: As x→ ∞, y → _____	LEFT: As x→ -∞, y → _____	RIGHT: As x→ ∞, y → _____

20)

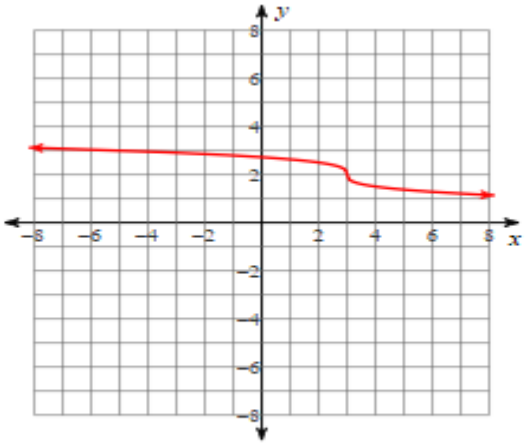


21)



Increase or Decrease	[____, ____)	Increase or Decrease	(____, ____)
Absolute Max/Min	(____, ____)	Absolute Max/Min	None
Domain	[____, ____)	Domain	(____, ____)
Range	(____, ____]	Range	(____, ____)
End Behavior		End Behavior	
LEFT: As x→ -∞, y → NA	RIGHT: As x→ ∞, y → _____	LEFT: As x→ -∞, y → _____	RIGHT: As x→ ∞, y → _____

22)

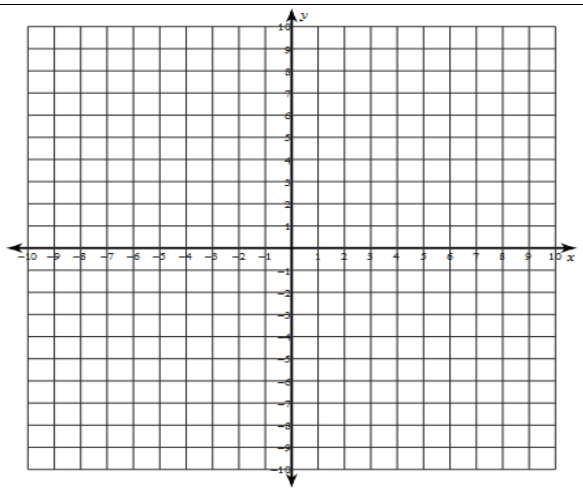


Study Guide Radical Functions Name _____

Identify the needed points, sketch the graph, and identify the transformations.

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

Starting Point: (____, ____) a = _____



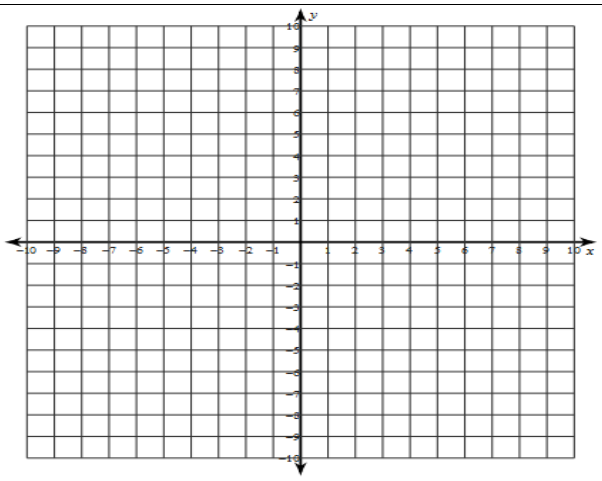
Transformations: _____

_____

_____

24) $y = -2\sqrt{x+4} - 1$

Starting Point: (____, ____) a = _____



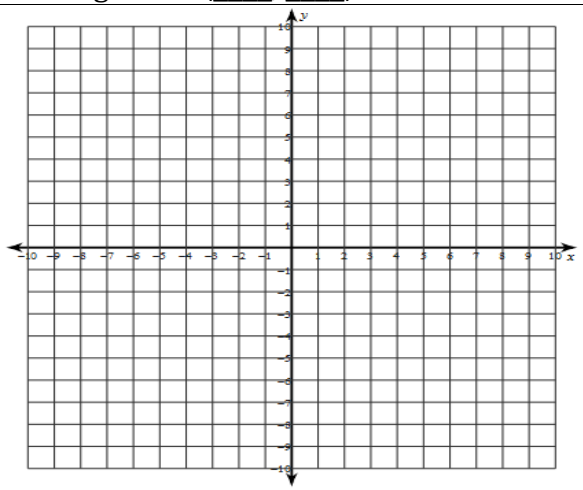
Transformations: _____

_____

_____

25) $f(x) = \frac{3}{4}\sqrt[3]{x-1} - 3$

Starting Point: (____, ____) a = _____



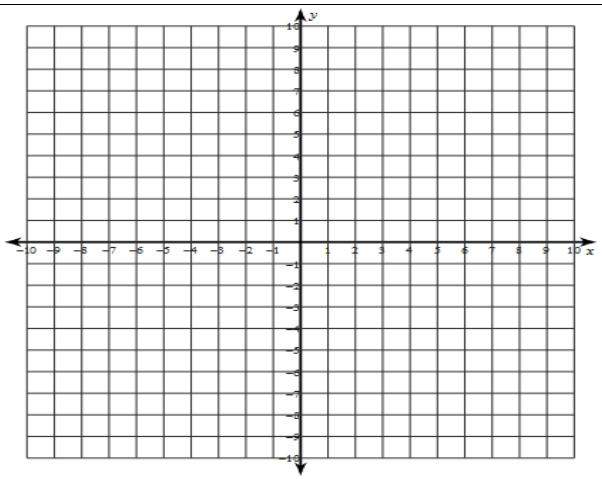
Transformations: _____

_____

_____

26) $f(x) = -2\sqrt[3]{x-2} + 1$

Starting Point: (____, ____) a = _____



Transformations: _____

_____

_____

Solve each equation. Show your work.

27) $x^{\frac{2}{3}} = 256$	28) $x^{\frac{4}{3}} = 81$	29) $\sqrt[3]{3x-13} = \sqrt[3]{x-21}$	30) $\sqrt{2x-5} = \sqrt{4x-9}$
31) $\sqrt{2x+6} = \sqrt{3x+1}$	32) $\sqrt{2x-5} + 11 = 36$	33) $3\sqrt{x-11} = 18$	34) $\sqrt[3]{3x} = \sqrt[3]{2x+9}$
35) $\sqrt[3]{4x+1} - 5 = 0$	36) $\sqrt[4]{10x+11} = 3$	37) $3(4x+1)^{\frac{1}{2}} = 27$	38) $3(x-2)^{\frac{1}{3}} = -9$
39) $5(x+5)^{\frac{1}{3}} = -15$	40) $5(6x+1)^{\frac{1}{4}} = 10$	41) $(x+4)^{\frac{1}{2}} = 6$	42) $(10x-25)^{\frac{1}{2}} = x$
43) $4(x-3)^{\frac{1}{2}} = 8$	44) $4(x-12)^{\frac{1}{3}} = -16$	45) $\sqrt{7x+12} = x$	46) $\sqrt{2x+15} = x$
47) $x + 2 = \sqrt{3x+6}$	48) $\sqrt{2x+5} = x - 5$	49) $\sqrt{-6x+30} = x - 5$	50) $\sqrt{-14x+2} = x - 3$