

Intermediate Algebra Unit 7 Part 1 Review

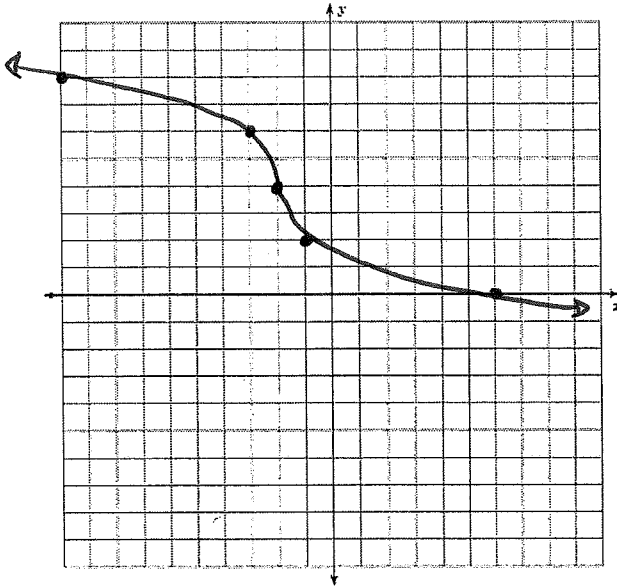
Name: ANSWER KEY

Period: _____

Problems 1 – 2: Graph the following radical functions using a table of points, then find domain and range.

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

x	y
-10	8
-3	6
-2	4
-1	2
6	0



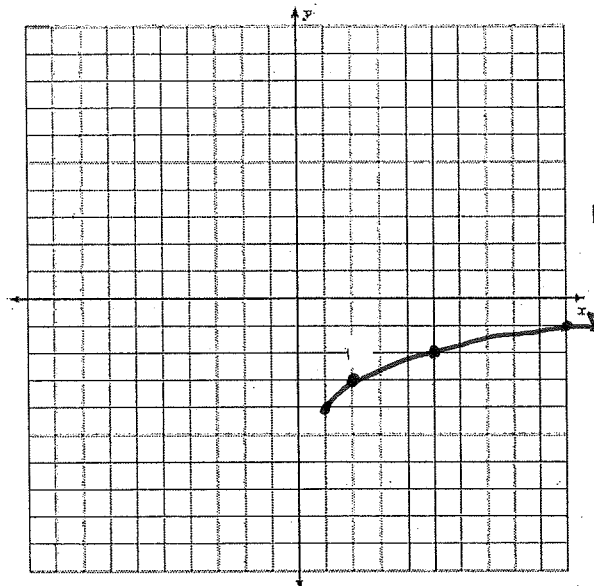
Inflection Pt: $(-2, 4)$

Domain: $\mathbb{R}$

Range: $\mathbb{R}$

2. $f(x) = \sqrt{x-1} - 4$

x	y
1	-4
2	-3
5	-2
10	-1

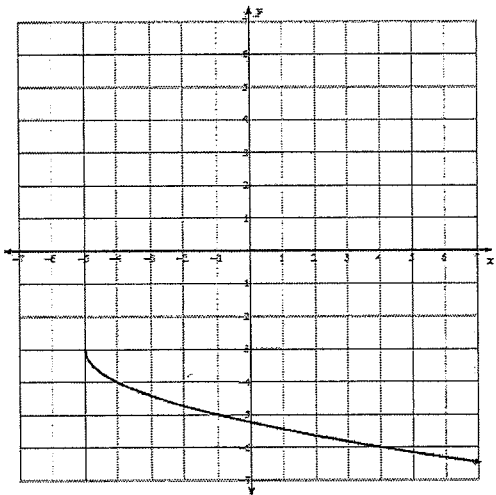


Starting Pt: $(1, -4)$

Domain: $x \geq 1$

Range: $y \geq -4$

3. Write the equation of the following graphed function. Write the domain and range.



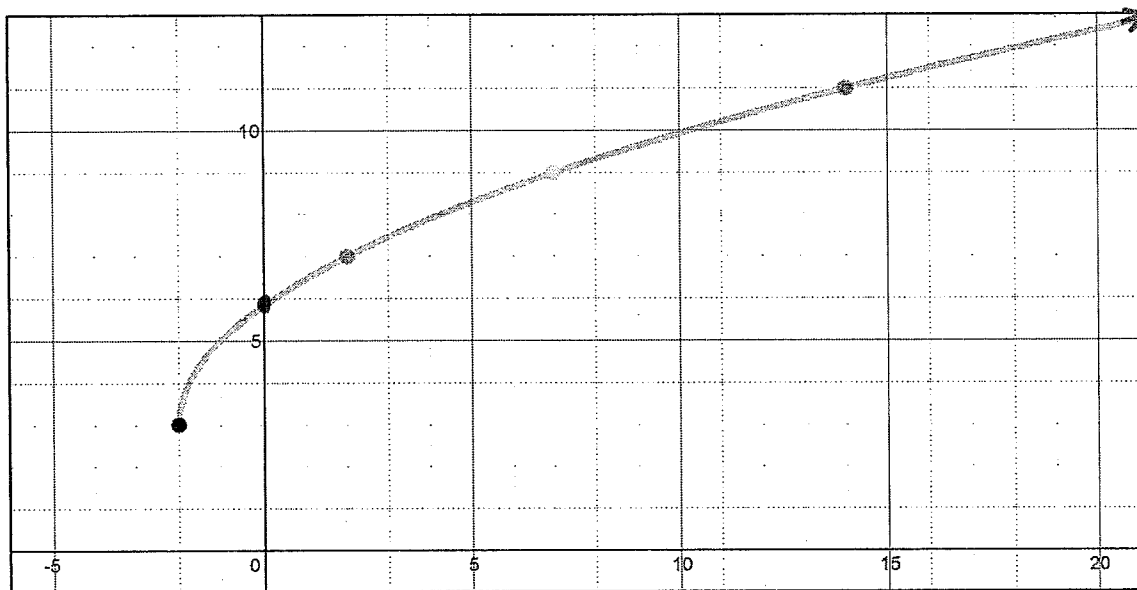
Starting Pt: $(-5, -3)$

$$f(x) = \underline{-\sqrt{x+5} - 3}$$

Domain: $x \geq -5$

Range: $y \leq -3$

4. The amount of money you earn per hour at a math text book company depends on how many pages you correct. This situation follows a square root function $M(p) = 2 \cdot \sqrt{p+2} + 3$. Answer the following questions from the graph below



- a. Name the y -intercept. What does it mean in terms of this problem?

$(0, 6)$ You would earn \$6 after correcting 0 pages.

- b. Name the x -intercept. What does it mean in terms of this problem?

There is no x -intercept. This means you are never paid \$0

Simplify the expression.

5. $x^4 \cdot x^9$

Ans: x^{13}

6. $\frac{x^4}{x^9}$

Ans: $\frac{1}{x^5}$

7. $(x^4)^9$

Ans: x^{36}

8. $\frac{6x^2y^8z^{-4}}{8x^4y^{-5}z^6}$

Ans: $\frac{3y^{13}}{4x^2z^{10}}$

9. $(x^2)^{-3}$

Ans: $\frac{1}{x^6}$

10. $(x^{-2})^{-2}$

Ans: x^4

Rewrite in rational exponent form.

11. $\sqrt[3]{x^2}$

Rewrite: $x^{\frac{2}{3}}$

12. $(\sqrt[9]{x})^{13}$

Rewrite: $x^{\frac{13}{9}}$

13. $\sqrt[3]{216x^2}$

Rewrite: $(216x^2)^{\frac{1}{3}}$
 $6x^{\frac{2}{3}}$

Rewrite in radical form.

14. $a^{\frac{5}{8}}$

15. $a^{\frac{7}{4}}$

16. $b^{\frac{1}{5}}$

Rewrite: $\sqrt[8]{a^5}$

Rewrite: $\sqrt[4]{a^7}$

Rewrite: $\sqrt[5]{b}$

Simplify the expressions using properties of rational exponents.

17. $a^{\frac{2}{5}} \cdot a^{\frac{5}{2}}$

18. $x^{\frac{3}{4}} \cdot x^{\frac{1}{3}}$

19. $\frac{x^{\frac{5}{2}} \cdot x^{\frac{4}{5}}}{\left(x^{\frac{2}{3}}\right)^3}$

20. $\frac{\left(\frac{x^{\frac{1}{2}}}{x^{\frac{-1}{3}}}\right)}{\left(x^{\frac{-1}{6}}\right)}$

Ans: $a^{\frac{29}{10}}$

Ans: $x^{\frac{13}{12}}$

Ans: $x^{\frac{13}{10}}$

Ans: x

Simplify the expressions using properties of radical expressions. Use absolute value when necessary.

21. $\sqrt[3]{a^6 b^9}$

22. $\sqrt{100a^2 b^4}$

23. $\left(\sqrt[3]{\frac{216}{125}}\right)^2$

24. $\sqrt[4]{\left(\frac{b^{12}}{a^8}\right)^5}$

Ans: $a^2 b^3$

Ans: $10|a|b^2$

Ans: $\frac{36}{25}$

Ans: $\frac{|b^{15}|}{a^{10}}$