

Chapter 7 Practice Test

Name _____

Advanced Algebra

For problems 1 – 5, solve the equation. Check for extraneous solutions.

1. $\sqrt{2x+1} = \sqrt{5x}$

1. _____

2. $(2x-1)^{1/5} + 2 = 3$

2. _____

3. $\sqrt{3x+13} - 5 = x$

3. _____

4. $(x+5)^{2/3} = 4$

4. _____

5. $3 + (4-x)^{3/2} = 11$

5. _____

6. A spherical water tank holds 15,000 ft³ of water. Find the diameter of the tank.

(HINT: $V = \frac{\pi}{6}d^3$.)

6. Diameter: _____

For problems 7 – 11, simplify each radical expression. Assume all variables are positive. Do not use decimals.

7. $3\sqrt{48} + \sqrt{27}$

7. _____

8. $\sqrt[5]{-32x^{10}} \cdot \sqrt[5]{y^{25}z^5}$

8. _____

9. $3\sqrt{27x^5y^3} \cdot 5\sqrt{48x^4y^5}$

9. _____

10. $(8^{-2}x^9y^{-12})^{\frac{1}{3}}$

10. _____

11. $\frac{4 - 3\sqrt{5}}{3 - 2\sqrt{5}}$

11. _____

12. Given $y = 3\sqrt[3]{x + 3} + 4$,

a. what is the domain?

12a. _____

b. what is the range?

12b. _____

c. describe the horizontal shift.

12c. _____

d. describe the vertical shift.

12d. _____

13. Given $y = 5\sqrt[4]{x - 2} - 1$,

a. what is the domain?

13a. _____

b. what is the range?

13b. _____

c. describe the horizontal shift.

13c. _____

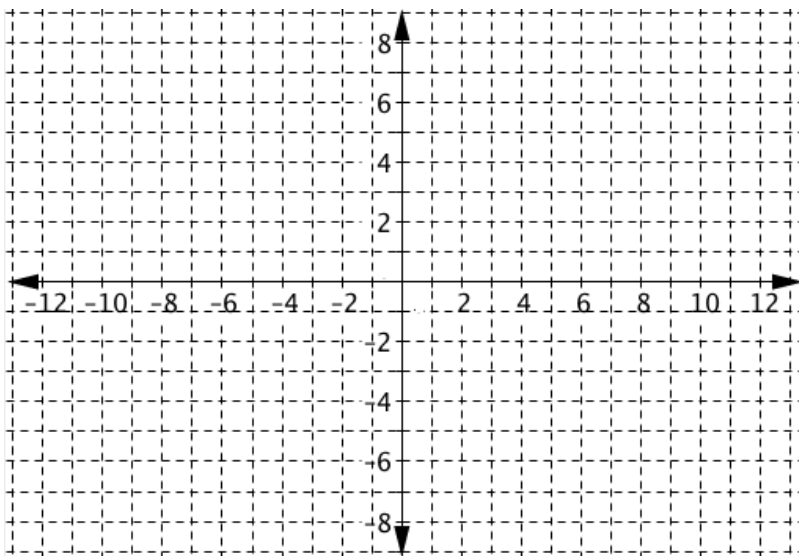
d. describe the vertical shift.

13d. _____

14. Graph the function $y = 2\sqrt[3]{x+3} - 1$ and state the domain and range of the function.

Domain: _____

Range: _____



15. Graph the function $y = -\frac{1}{3}\sqrt{x-2} - 4$ and state the domain and range of the function.

Domain: _____

Range: _____

