

**Algebra 1**  
**Practice Chapter 10 Test**

NAME KEY

Write the letter for the best answer. (3 Points each)

1. How does the graph of  $y = \sqrt{x - 3}$  compare to the parent graph?

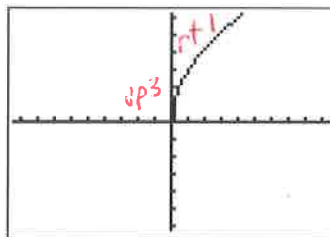
- A. up 3      B. down 3      C. right 3      D. left 3

2. How does the graph of  $y = \sqrt{x} + 4$  compare to the parent graph?

- A. up 4      B. down 4      C. right 4      D. left 4

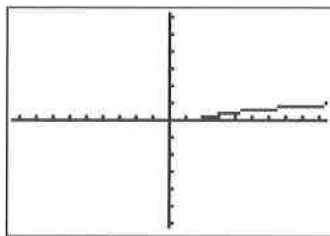
3. What equation corresponds to the graph shown?

- A.  $y = \sqrt{x} + 3$       B.  $y = \sqrt{x + 3}$   
C.  $y = 3\sqrt{x}$       D.  $y = \frac{1}{3}\sqrt{x}$



4. What equation corresponds to the graph shown?

- A.  $y = \frac{1}{3}\sqrt{x - 2}$       B.  $y = \frac{1}{3}\sqrt{x} - 2$   
C.  $y = \frac{1}{3}\sqrt{x + 2}$       D.  $y = \frac{1}{3}\sqrt{x} + 2$



5. Simplify  $\sqrt{50}$

- A.  $25\sqrt{2}$       B.  $10\sqrt{5}$   
C.  $5\sqrt{2}$       D.  $2\sqrt{5}$

6. Simplify  $\sqrt{24}$

- A.  $6\sqrt{2}$       B.  $6\sqrt{4}$   
C.  $4\sqrt{6}$       D.  $2\sqrt{6}$

7. Simplify  $\sqrt{40}$

- A.  $2\sqrt{10}$       B.  $5\sqrt{8}$   
C.  $10\sqrt{2}$       D.  $4\sqrt{10}$

8. Simplify  $\sqrt{48}$

- A.  $2\sqrt{12}$       B.  $12\sqrt{2}$   
C.  $16\sqrt{3}$       D.  $4\sqrt{3}$

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

Points(24) \_\_\_\_\_

9. Simplify  $\sqrt{45x^3y^2}$   $\sqrt{9 \cdot 5 \cdot x^2 \cdot y^2} = 3xy\sqrt{5x}$

- A.  $3|xy|\sqrt{5x}$  B.  $3x|y|\sqrt{5x}$   
 C.  $3x^2|y|\sqrt{5x}$  D.  $5|xy|\sqrt{3x}$

10. Simplify  $\sqrt{20x^2y^4z^5}$   $\sqrt{4 \cdot 5 \cdot x^2 \cdot y^4 \cdot z^2 \cdot z} = 2xy^2z^2\sqrt{5z}$

- A.  $2xy^2z^2\sqrt{5z}$  B.  $2|xy^2|z^2\sqrt{5z}$   
 C.  $2|x|y^2z^2\sqrt{5z}$  D.  $2|xy^2z^2|\sqrt{5z}$

11. Simplify  $\sqrt{90x^4y^5z^6}$   $\sqrt{9 \cdot 10 \cdot x^4 \cdot y^2 \cdot y^3 \cdot z^6} = 3x^2y^2z^3\sqrt{10y}$

- A.  $3|x^2y^2z^3|\sqrt{10y}$  B.  $3x^2y^2|z^3|\sqrt{10y}$   
 C.  $3x^2y^2|z^3|\sqrt{10y}$  D.  $3x^2|yz^3|\sqrt{10y^3}$

12. Simplify  $\sqrt{\frac{7}{3}}$   $= \frac{\sqrt{7}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{21}}{3}$

- A.  $\frac{\sqrt{21}}{3}$  B.  $\frac{3\sqrt{7}}{7}$   
 C.  $\sqrt{3}$  D.  $\frac{\sqrt{21}}{\sqrt{3}}$

13. Simplify  $\frac{3}{5-\sqrt{2}}$   $\frac{3(5+\sqrt{2})}{(5-\sqrt{2})(5+\sqrt{2})} = \frac{15+3\sqrt{2}}{25-2} = \frac{15+3\sqrt{2}}{23}$

- A.  $\frac{15+3\sqrt{2}}{23}$  B.  $\frac{15-3\sqrt{2}}{23}$   
 C.  $15+3\sqrt{2}$  D.  $\frac{15+3\sqrt{2}}{3}$

14. Simplify  $7\sqrt{10} - 2\sqrt{10}$

- A. 50 B.  $5\sqrt{10}$   
 C.  $25\sqrt{2}$  D.  $10\sqrt{5}$

15. Simplify  $5\sqrt{8} + \sqrt{12} - 2\sqrt{18}$   $5\sqrt{4 \cdot 2} + \sqrt{4 \cdot 3} - 2\sqrt{9 \cdot 2}$

- A.  $4\sqrt{38}$  B.  $5\sqrt{8} - 2\sqrt{3} - 6\sqrt{2}$   
 C.  $4\sqrt{2} + 2\sqrt{3}$  D.  $2\sqrt{2} - 2\sqrt{3}$

16. Simplify  $\sqrt{3}(\sqrt{5} + 4\sqrt{3}) = \sqrt{15} + 4\sqrt{9} = \sqrt{15} + 12$

- A.  $\sqrt{15} + 36$  B.  $12\sqrt{15}$   
 C.  $\sqrt{27}$  D.  $\sqrt{15} + 12$

only odd exponents get absolute value !!

9. \_\_\_\_\_  
 10. \_\_\_\_\_  
 11. \_\_\_\_\_  
 12. \_\_\_\_\_  
 13. \_\_\_\_\_  
 14. \_\_\_\_\_  
 15. \_\_\_\_\_  
 16. \_\_\_\_\_

Points(24) \_\_\_\_\_

17. Solve  $\sqrt{2x - 8} = 4$ .

- A. 8
- C. 10

- B. 12**
- D. 14

$$(\sqrt{2x-8})^2 = (4)^2$$

$$2x - 8 = 16$$

$$2x = 24$$

$$x = 12$$

18. Solve  $\sqrt{x - 5} = 7$ .

- A. 44
- C. 2

- B. 16
- D. 54**

$$(\sqrt{x-5})^2 = (7)^2$$

$$x - 5 = 49$$

$$x = 54$$

19. Solve  $\sqrt{x - 6} + 3 = 5$ .

- A. 10**
- C. 13

- B. 21
- D. 25

$$(\sqrt{x-6})^2 = (2)^2$$

$$x - 6 = 4$$

$$x = 10$$

20. Solve  $2\sqrt{3x + 4} = 10$ .

- A. 7**
- C. 10

- B. 14
- D. 23

$$(\sqrt{3x+4})^2 = (5)^2$$

$$3x + 4 = 25$$

$$3x = 21$$

$$x = 7$$

21. Find the length of the missing side if  $a = 4$  and  $b = 5$ .

- A. 2.7**
- C. 6.4

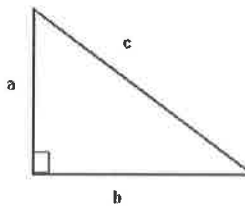
- B. 5.8
- D. 8.3

$$a^2 + b^2 = c^2$$

$$4^2 + 5^2 = c^2$$

$$16 + 25 = c^2$$

$$\sqrt{41} = c$$



22. Find the length of the missing side if  $b = 5$  and  $c = 11$ .

- A.  $4\sqrt{6}$**
- C.  $5\sqrt{3}$

- B. 6
- D. 96

$$a^2 + 5^2 = 11^2$$

$$a^2 + 25 = 121$$

$$a^2 = 96$$

$$a = \sqrt{96} = \sqrt{16 \cdot 6}$$

23. Determine which side measures form a right triangle.

- A. 6, 13, 14
- C. 5, 12, 13**

- B. 7, 14, 15
- D. 8, 15, 16

$$a^2 + b^2 = c^2$$

$$36 + 169 \neq 196$$

$$5^2 + 12^2 = 13^2$$

$$25 + 144 = 169$$

$$7^2 + 14^2 = 15^2$$

$$49 + 196 \neq 225$$

$$8^2 + 15^2 = 16^2$$

$$64 + 225 \neq 256$$

24. Find the distance between the points (3, 5) and (4, 8).

- A.  $\sqrt{170}$
- C.  $2\sqrt{10}$

- B.  $\sqrt{54}$
- D.  $\sqrt{10}$**

$$\sqrt{(3-4)^2 + (5-8)^2}$$

$$\sqrt{1 + 9}$$

$$\sqrt{10}$$

25. Find the distance between the points (5, -4) and (1, 2).

- A.  $3\sqrt{15}$
- C.  $9\sqrt{6}$

- B.  $4\sqrt{13}$
- D.  $2\sqrt{13}$**

$$\sqrt{(5-1)^2 + (-4-2)^2}$$

$$\sqrt{16 + 36}$$

$$\sqrt{52} = \sqrt{4 \cdot 13}$$

- 17. \_\_\_\_\_
- 18. \_\_\_\_\_
- 19. \_\_\_\_\_
- 20. \_\_\_\_\_
- 21. \_\_\_\_\_
- 22. \_\_\_\_\_
- 23. \_\_\_\_\_
- 24. \_\_\_\_\_
- 25. \_\_\_\_\_

Points(27) \_\_\_\_\_

26. Find the coordinates of the midpoint of (11, -9) and (5, 13).

A. (6, 7)

C. (8, 2)

B. (3, -11)

D. (10, 2)

$$\left( \frac{11+5}{2}, \frac{-9+13}{2} \right)$$

27. Find the coordinates of the midpoint of (8, -7) and (-6, -4).

A. (7, 1.5)

C. (-7, 6.5)

B. (1, -5.5)

D. (2, -6.5)

$$\left( \frac{8+(-6)}{2}, \frac{-7+(-4)}{2} \right)$$

USE THE FIGURE TO ANSWER #28-31

28. If the two triangles are similar, and  $a = 9$ ,  $c = 13$  and  $d = 12$ , find  $f$ .

A. 7.3

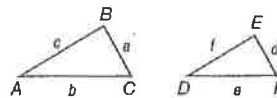
B. 10.83

C. 12.5

D. 17.3

$$\frac{9}{12} = \frac{13}{f}$$

$$9f = 156$$



26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

29. If the two triangles are similar, and  $a = 15$ ,  $b = 8$  and  $e = 12$ , find  $d$ .

A. 16.5

B. 8.5

C. 22.5

D. 18.5

$$\frac{15}{d} = \frac{8}{12}$$

$$8d = 180$$

29. \_\_\_\_\_

30. \_\_\_\_\_

30. If the two triangles are similar, and  $b = 14$ ,  $c = 18$  and  $f = 16$ , find  $e$ .

A. 22.4

B. 20.4

C. 11.4

D. 12.4

$$\frac{14}{e} = \frac{18}{16}$$

$$18e = 224$$

31. \_\_\_\_\_

32. \_\_\_\_\_

33. \_\_\_\_\_

31. If  $a = 6$ ,  $b = 18$ ,  $c = 10$ ,  $d = 12$ ,  $e = 36$ , and  $f = 20$ , are the triangles similar?

A. Yes

B. No

C. Maybe

D. Can't be determined

$$\frac{6}{12} = \frac{1}{2}$$

Same ratio

$$\frac{18}{36} = \frac{1}{2}$$

So Yes

$$\frac{10}{20} = \frac{1}{2}$$

DRAW A PICTURE FOR #32-33.

32. LADDERS A 16 foot ladder leans against a wall. The base of the ladder is 6 feet from where the wall meets the ground. How far up the wall does the ladder reach?

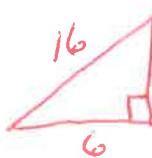
Points(24) \_\_\_\_\_

A. 14.8 ft

B. 12.9 ft

C. 144 ft

D. 220 ft



$$a^2 + 6^2 = 16^2$$

$$a^2 = 220$$

$$a = \sqrt{220}$$

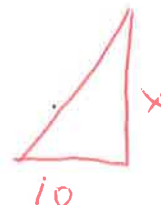
33. TREES An individual that is 5.5 ft casts a shadow of 3 feet. If a tree is casting a shadow of 10 feet, how tall is the tree?

A. 18.3 ft

B. 1.6 ft

C. 5.5 ft

D. 21.6 ft



$$\frac{3}{10} = \frac{5.5}{x}$$

$$3x = 55$$