

Name:

Class Period:

SM3

Worksheet 1.D Solving Radical Equations

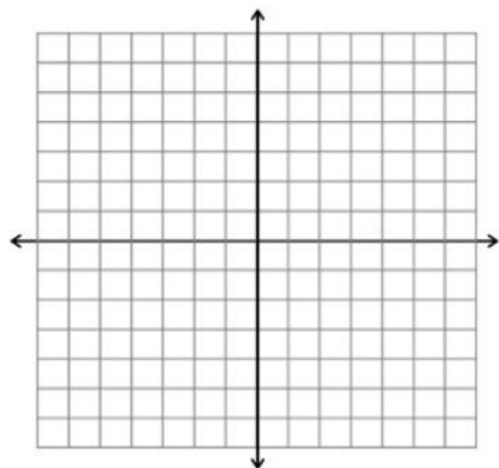
1. Solve the radical equation algebraically:

$$\sqrt{x+5} + 2 = 3$$

2. Solve the equation from #1 graphically:

$$\sqrt{x+5} + 2 = 3$$

State the solution:



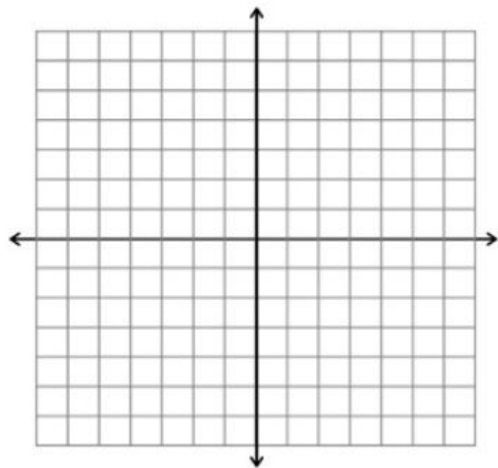
3. Solve the radical equation algebraically:

$$2\sqrt[3]{x-1} = 4$$

4. Solve the equation from #3 graphically:

$$2\sqrt[3]{x-1} = 4$$

State the solution:



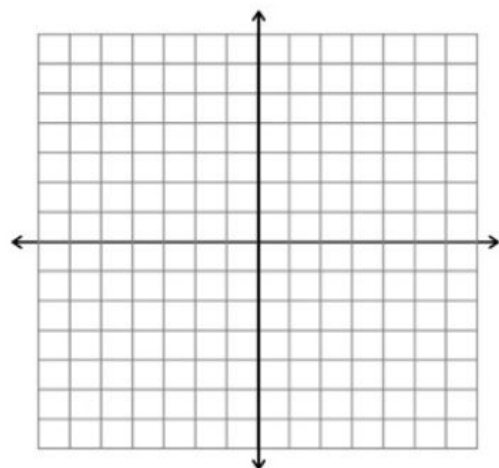
5. Solve the radical equation algebraically:

$$\sqrt{x+3} + 1 = -2$$

6. Solve the equation from #5 graphically:

$$\sqrt{x+3} + 1 = -2$$

State the solution:



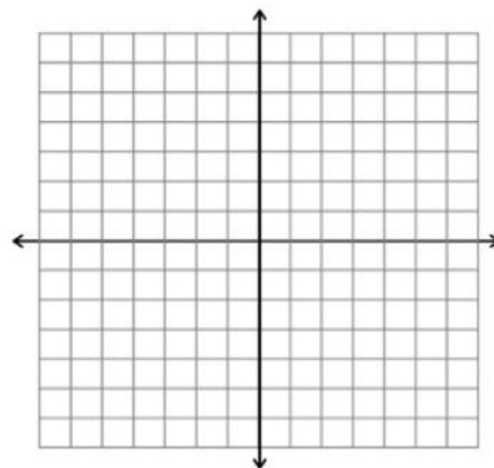
7. Solve the radical equation algebraically:

$$3\sqrt[3]{x} + 5 = -1$$

8. Solve the radical equation from #7 graphically:

$$3\sqrt[3]{x} + 5 = -1$$

State the solution:

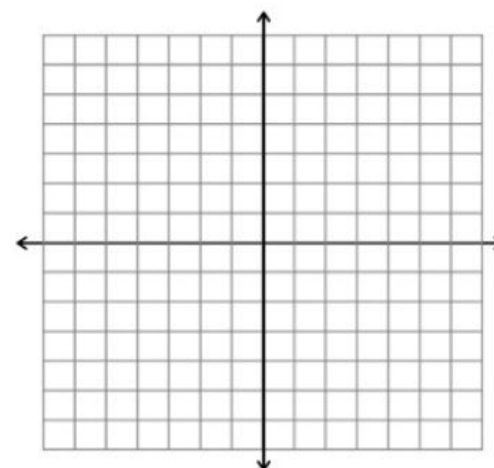


9. Solve the radical equation algebraically:

$$-2\sqrt{x-4} = -4$$

10. Solve the radical equation from #9 graphically: $-2\sqrt{x-4} = -4$

State the solution:



11. Write the following in Exponential Form, then simplify:

$$4\sqrt[3]{216a^9b^{18}}$$

12. Write the following in Exponential Form, then simplify:

$$2\sqrt{100x^8y^6}$$

13. Which expression has the largest value?

- (A) $16^{\frac{3}{2}}$
- (B) $27^{\frac{1}{3}}$
- (C) $100^{\frac{1}{2}}$
- (D) $125^{\frac{2}{3}}$

14. Which expression is equivalent to $32x^{\frac{1}{5}}$?

- (A) $2\sqrt[5]{x}$
- (B) $32\sqrt[5]{x}$
- (C) $\frac{161}{5}\sqrt[5]{x}$
- (D) $\frac{32}{5}\sqrt[5]{x}$

15.

Select **all** of the expressions equivalent to 24.

$$6\sqrt{2} \quad (2\sqrt{6})^2 \quad \sqrt{\frac{48}{2}}$$

$$\frac{(4\sqrt{6})^2}{4} \quad (\sqrt{24})^{\frac{1}{2}} \quad (24^{\frac{1}{3}})^3$$

16.

An expression is shown.

$$(\sqrt{16})^{\frac{1}{2}}$$

Which expression is equivalent?

- (A) 2
- (B) 4
- (C) 8
- (D) 16

17.

Which equation is equivalent to $3y^{\frac{1}{3}} = -\frac{1}{x}$?

- (A) $y = \sqrt[3]{-\frac{1}{27x}}$
- (B) $y = -\frac{1}{27x^3}$
- (C) $y = -\frac{1}{3x}$
- (D) $y = -\frac{1}{x}$

18.

Which expression is equivalent to $(\sqrt{8})^{\frac{1}{3}}$?

- (A) $\sqrt[3]{8}$
- (B) $\sqrt[6]{8}$
- (C) $\sqrt{512}$
- (D) $\sqrt[6]{32678}$

19.

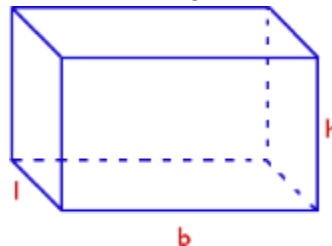
A. Place one number in each box so the simplified expression will be an

$$\frac{1}{x^2 + 2x + 1}$$

integer.

B. Simplify your expression from part A.

20. Find the Surface Area and Volume if the height is 5 m, the length is $3x\sqrt{3}$ m, and the width is $x\sqrt{3}$ cm.



21.

An expression is shown.

$$\left(\frac{9y^4}{4w^2}\right)^{\frac{1}{2}}$$

Which expression is equivalent?

- (A) $\frac{81y^4}{16w^2}$
- (B) $\frac{4.5y^4}{2w^2}$
- (C) $\frac{4.5y^2}{2w}$
- (D) $\frac{3y^2}{2w}$

23. Mike and Peter are running a race on a circular track. The following tables represent their progress. Find the average rate of change for each runner from 2 minutes to 10 minutes.

Mike

min	laps
2	4
5	8
6	10
10	15
12	19

Peter

min	laps
1	3
2	5
7	9
10	15
11	16

Mike _____ Peter _____

What units should be used to describe the average rate of change?

22.

A. Select the expression(s) that are equivalent to $25^{\frac{3}{2}}$.

B. Put digits from the column on the left into the boxes to show the value of $25^{\frac{3}{2}}$. (You do **not** necessarily need to use all the boxes.)

0
1
2
3
4
5
6
7
8
9

Delete

A.

$\sqrt{25^3}$
 $\sqrt[2]{25^3}$
 $\sqrt[3]{5^2}$

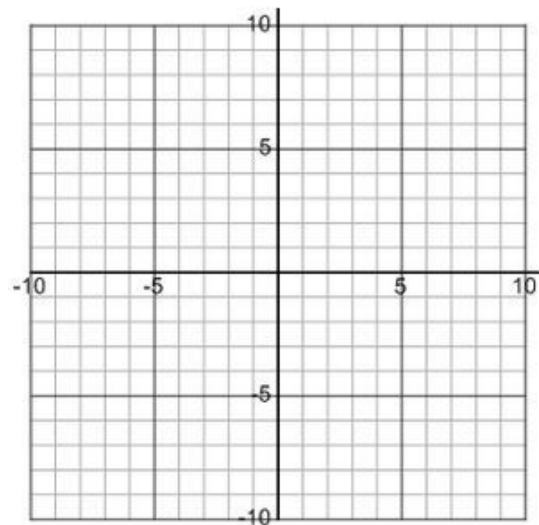
$\sqrt[3]{25^2}$
 $\sqrt[25]{3^2}$
 5^3

B.

$25^{\left(\frac{3}{2}\right)} =$

24. Graph and label the following if $f(x) = \sqrt[3]{x}$

- a. $2f(-x)$
- b. $3 - f(x)$
- c. $f(3x)$
- d. $f(x - 2)$



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