

Questions over Chapter 6 Test

Nov 29-12:41 PM

Simplify each expression. Use only positive exponents.

(p. 368)

- | | | |
|--------------------------------|---|---|
| 1. $(3a^2)(4a^6)$ | 2. $(-4x^2)(-2x^{-2})$ | 3. $(4x^2y^5)^2$ |
| 4. $(2x^{-5}y^4)^3$ | 5. $\frac{8a^5}{2a^8}$ | 6. $\frac{6x^7y^5}{3x^{-1}}$ |
| 7. $\frac{(4x^2)^0}{2xy^5}$ | 8. $\left(\frac{3x^2}{2}\right)^2$ | 9. $(-6m^2n^2)(3mn)$ |
| 10. $(3x^4y^5)^{-3}$ | 11. $\frac{(2r^{-1}s^2t^0)^{-2}}{2rs}$ | 12. $x^5(2x)^3$ |
| 13. $\frac{x^4x^{-2}}{x^{-5}}$ | 14. $\frac{(12x^2y^0)^2}{8x^4y^7}$ | 15. $(4p^2q)(p^2q^3)$ |
| 16. $\frac{4x^3}{2x}$ | 17. $(p^2)^{-2}$ | 18. $-\frac{15x^4}{3x}$ |
| 19. $\frac{r^2s^4}{r^3s^4}$ | 20. $\frac{xy^2}{2} \cdot \frac{6x}{y^2}$ | 21. $(s^2t)^3(st)$ |
| 22. $(3x^{-3}y^{-2})^{-2}$ | 23. $(h^4k^5)^0$ | 24. $\frac{x^2z^3}{r} \cdot \frac{sr^3}{t}$ |

Nov 30-7:23 AM

① $(3a^2)(4a^6)$
 $12 a^2 \cdot a^6 \rightarrow$ add exponents
 $12a^8$

Nov 30-10:36 AM

③ $(4^3 x^5 y^2)^2 \rightarrow$ power to a power... multiply exponents

$4^2 x^6 y^{10}$

$16 x^6 y^{10}$

Nov 30-10:38 AM

⑱ $\frac{r^2 s^3 t^1}{r^2 s^4 t^4} \rightarrow$ subtract exponents

$s^{-1} t^8$

$\frac{t^8}{s^1}$

zero exponent? = 1.

negative exponents "flip it"

Nov 30-10:41 AM

Simplify:

1) $\frac{6x^7y^{-5}}{2x^{-2}y}$ 2) $(x^2y^3)^4(xy)$

3) Simplify: $\sqrt{3^2}$ $\sqrt{x^2}$ $\sqrt{x^4}$ $\sqrt{3^4} = 3^2$ or 9

$3, x, \sqrt{x^2 \cdot x^2} = x^2$

4) Can you find: $\sqrt{x^6}$ $\sqrt{x^8}$ $\sqrt{x^{10}}$

Is there a pattern? x^3 x^4 x^5

Jan 19-10:43 AM

Section 7.1
Roots and Radical Expressions

Nov 29-12:44 PM

Introduction to Roots . . .

Since $5^2 = 25$, then . . . $\sqrt{5^2} = 5$
 $5^3 = 125$, then . . . *Cube root of 125 = 5*
 $5^4 = 625$, then . . . *4th root of 625 = 5*

Principal Square Root is always the positive root.

Jan 19-11:07 AM

If $a^n = b$, then a is the n th root of b .

IE, $5^5 = 3,125$, then 5 is the 5th root of 3,125.

$$\sqrt[5]{3125} = 5$$

Nov 29-1:00 PM

When do you use \pm ? \pm

Since $(2)^4 = 16$ and $(-2)^4 = 16$, then the 4th root of 16 is ± 2 .

However, since $(-5)^3 = -125$, then the cube root of -125 is -5.

Here is a summary of the number of possible real roots of a real number.

Type of Number	Number of Real n th Roots When n Is Even	Number of Real n th Roots When n Is Odd
positive	2	1
0	1	1
negative	none	1

even roots always use \pm

Nov 29-1:04 PM

index radical
 $\sqrt{\text{radicand}}$

2 $\sqrt{\quad}$
 3 $\sqrt{\quad}$
 4 $\sqrt{\quad}$

Nov 29-1:15 PM

Find all the real square roots.

1) 49 2) $\frac{64}{144}$ 3) $-\frac{1}{25}$
 ± 7 $\pm \frac{8}{12} = \pm \frac{2}{3}$ none

Find all the real cube roots.

4) -27 5) 0.125 6) $\sqrt[3]{-\frac{1}{8}} = -\frac{1}{2}$
 $\sqrt[3]{-3^3} = -3$ 0.5

Find each real root.

6) $-\sqrt{36}$ 7) $\sqrt[3]{-64}$ 8) $\sqrt{81} = \pm 3$
 -6 $\sqrt[3]{8} \sqrt[3]{8} = -2 \cdot 2 = -4$

Jan 19-11:11 AM

NO ABSOLUTE VALUE NEEDED.

Simplify each radical.

10) $\sqrt{36x^2} = \sqrt{36} \cdot \sqrt{x^2} = 6x$

11) $\sqrt[3]{-64x^6} = \sqrt[3]{-64} \cdot \sqrt[3]{x^6} = -4x^2$

12) $\sqrt[4]{x^{20}y^4} = \sqrt[4]{x^{20}} \cdot \sqrt[4]{y^4} = x^5y$

13) $\sqrt[5]{-n^{15}} = -n^3$

14) $\sqrt{144x^8y^{10}z^{12}} = 12x^4y^5z^6$

Jan 19-11:14 AM

Homework 7.1

p. 372 #1-53 odd (skip 45)

Jan 19-11:17 AM

Find all the real square roots of each number.

1. 225 2. 0.0049 3. $-\frac{64}{121}$ 4. $\frac{64}{169}$

Find all the real cube roots of each number.

5. -64 6. 0.125 7. $-\frac{27}{216}$ 8. 0.000343

Find all the real fourth roots of each number.

9. 16 10. -16 11. 0.0081 12. $\frac{10,000}{81}$

Find each real-number root.

13. $\sqrt{36}$ 14. $-\sqrt{36}$ 15. $\sqrt{-36}$ 16. $\sqrt[3]{0.36}$
 17. $-\sqrt[3]{64}$ 18. $\sqrt[3]{-64}$ 19. $-\sqrt[3]{81}$ 20. $\sqrt[3]{-81}$

Simplify each radical expression. Use absolute value symbols when needed.

21. $\sqrt{16x^2}$ 22. $\sqrt{0.25x^6}$ 23. $\sqrt[4]{x^8y^{18}}$ 24. $\sqrt[4]{64x^{48}}$
 25. $\sqrt[3]{-64x^3}$ 26. $\sqrt[3]{27y^6}$ 27. $\sqrt[4]{x^8y^{12}}$ 28. $\sqrt[3]{32y^{10}}$

Geometry The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$. Find the radius to the nearest hundredth of a sphere with each volume.

29. 10 in.³ 30. 20 ft.³ 31. 0.45 cm.³ 32. 0.002 mm.³

Find the two real-number solutions of each equation.

33. $x^2 = 100$ 34. $x^4 = 1$ 35. $x^2 = 0.25$ 36. $x^4 = \frac{16}{81}$

37. Arrange the numbers $\sqrt[3]{-64}$, $-\sqrt[3]{-64}$, $\sqrt{64}$, and $\sqrt[4]{64}$ in order from least to greatest.

Jan 5-10:13 PM

