

## Day 1 Homework: Properties of Exponents

**Part 1: Simplify. Your answer should contain only positive exponents.**

1)  $2m^2 \cdot 2m^3$

2)  $m^4 \cdot 2m^{-3}$

3)  $4r^{-3} \cdot 2r^2$

4)  $4n^4 \cdot 2n^{-3}$

5)  $2k^4 \cdot 4k$

6)  $2x^3y^{-3} \cdot 2x^{-1}y^3$

7)  $2y^2 \cdot 3x$

8)  $4v^3 \cdot vu^2$

9)  $4a^3b^2 \cdot 3a^{-4}b^{-3}$

10)  $x^2y^{-4} \cdot x^3y^2$

11)  $(x^2)^0$

12)  $(2x^2)^{-4}$

13)  $(4r^0)^4$

14)  $(4a^3)^2$

15)  $(3k^4)^4$

16)  $(4xy)^{-1}$

Part 2: Simplify each expression.

1)  $(x^{-2}x^{-3})^4$

2)  $(x^4)^{-3} \cdot 2x^4$

3)  $(n^3)^3 \cdot 2n^{-1}$

4)  $(2v)^2 \cdot 2v^2$

5)  $\frac{2x^2y^4 \cdot 4x^2y^4 \cdot 3x}{3x^{-3}y^2}$

6)  $\frac{2y^3 \cdot 3xy^3}{3x^2y^4}$

7)  $\frac{x^3y^3 \cdot x^3}{4x^2}$

8)  $\frac{3x^2y^2}{2x^{-1} \cdot 4yx^2}$

9)  $\frac{x}{(2x^0)^2}$

10)  $\frac{2m^{-4}}{(2m^{-4})^3}$

## Day 2 Homework

1) Simplify each expression.

$9\sqrt{3} + 2\sqrt{3}$	$5\sqrt{2} + 2\sqrt{3}$	$3\sqrt{7} - 7\sqrt{7}$
$3\sqrt{32} + 2\sqrt{50}$	$\sqrt{200} - \sqrt{72}$	$14\sqrt[3]{xy} - 3\sqrt[3]{xy}$
$4\sqrt[3]{81} - 3\sqrt[3]{72} - 3\sqrt[3]{24}$	$3\sqrt{12} + 7\sqrt{75} - \sqrt{54}$	Simplify $2\sqrt{9x} - 7\sqrt{9x}$  A. $-15\sqrt{x}$ B. $-15x$ C. $-5x$ D. $-5\sqrt{x}$
$5\sqrt{32} - 7\sqrt{8}$	$-7\sqrt{11} + 3\sqrt{11}$	Multiply $\sqrt[3]{25} \cdot \sqrt[3]{5}$ . Simplify.  A. 25 B. $5\sqrt[3]{5}$ C. $5\sqrt[3]{25}$ D. 5

2) A garden has width  $\sqrt{13}$  and length  $7\sqrt{13}$ . What is the perimeter of the garden in simplest radical form?

Simplify each expression.

3)  $5x\sqrt{99y^2} + 2y\sqrt{44x^2}$

4)  $14xy\sqrt{128x^3} - 17\sqrt{128x^5y^2}$

5)  $23\sqrt[3]{48x^3y^3} + 10xy\sqrt[3]{6}$

6)  $\sqrt[3]{2000xy^4} - 4y\sqrt[3]{54xy}$

7)  $\sqrt[5]{224r^7}$

8)  $\sqrt[3]{24m^3}$

9)  $\sqrt{392x^2}$

10)  $\sqrt{512x^2}$

11)  $\sqrt[4]{405x^3y^2}$

12)  $\sqrt[3]{-16a^3b^8}$

13)  $\sqrt[4]{128x^7y^7}$

14)  $\sqrt[3]{16xy}$

15)  $\sqrt[6]{448x^7y^7}$

16)  $\sqrt[3]{56x^5y}$

## Day 3 Homework

Write each expression in radical form.

1)  $7^{\frac{1}{2}}$

2)  $4^{\frac{4}{3}}$

3)  $2^{\frac{5}{3}}$

4)  $7^{\frac{4}{3}}$

5)  $6^{\frac{3}{2}}$

6)  $2^{\frac{1}{6}}$

Write each expression in exponential form.

7)  $(\sqrt{10})^3$

8)  $\sqrt[6]{2}$

9)  $(\sqrt[4]{2})^5$

10)  $(\sqrt[4]{5})^5$

11)  $\sqrt[3]{2}$

12)  $\sqrt[6]{10}$

Write each expression in radical form.

13)  $(5x)^{-\frac{5}{4}}$

14)  $(5x)^{-\frac{1}{2}}$

15)  $(10n)^{\frac{3}{2}}$

16)  $a^{\frac{6}{5}}$

Write each expression in exponential form.

19)  $(\sqrt[4]{m})^3$

20)  $(\sqrt[3]{6x})^4$

21)  $\sqrt[4]{v}$

22)  $\sqrt{6p}$

Simplify.

25)  $9^{\frac{1}{2}}$

26)  $343^{-\frac{4}{3}}$

27)  $1000000^{\frac{1}{6}}$

28)  $36^{\frac{3}{2}}$

29)  $(x^6)^{\frac{1}{2}}$

30)  $(9n^4)^{\frac{1}{2}}$

## Day 4 Homework

Part 1. Solve each equation.

1)  $27 = x^{\frac{3}{2}}$

2)  $m^{\frac{3}{4}} = 27$

3)  $x^{-\frac{3}{2}} = \frac{1}{729}$

4)  $7 = r^{\frac{1}{2}}$

5)  $v^{\frac{5}{4}} = 243$

6)  $n^{\frac{3}{2}} = 125$

Part 2. Solve each equation. Remember to check for extraneous solutions.

1)  $\sqrt{110 - n} = n$

2)  $p = \sqrt{2 - p}$

3)  $\sqrt{30 - x} = x$

4)  $x = \sqrt{8x}$

5)  $x = \sqrt{42 - x}$

6)  $\sqrt{12 - r} = r$

## Day 6 Homework

## Part 3. Solving Radical Equations

1.) $4x^{3/2} - 5 = 103$	2.) $\sqrt{x} + 6 = x$
3.) $7x - 3^{1/2} = 5$	4.) $\sqrt{x-3} - \sqrt{x} = 3$
5.) $5\sqrt{x} + 2 = 12$	6.) $\sqrt[3]{2x-4} = -2$
7.) $3(2x+4)^{4/3} = 48$	8.) $\sqrt{4x} - 8 = 0$
9.) $\sqrt{7x-6} - \sqrt{5x+2} = 0$	10.) $(x-2)^{2/3} - 4 = 5$
11.) $\sqrt[3]{2x+1} = \sqrt[3]{8}$	12.) $\sqrt{12x+13} = 2x+1$
13.) $2(x+1)^{3/2} = 54$	14.) $\sqrt[5]{3-x} + 4 = 3$

15.) The velocity of a free-falling object is given by  $V = \sqrt{2gh}$  where  $h$  is the distance in feet the object has fallen and  $g$  is acceleration due to gravity in feet per second squared. The value of  $g$  depends on your altitude. If an object hits the ground with a velocity of 25 feet per second, from what height was it dropped in each of the following situations?

a.) You are standing on earth, so  $g = 32 \text{ ft/s}^2$ .

b.) You are on a space shuttle, so  $g = 29 \text{ ft/s}^2$ .

c.) You are on the moon, so  $g = 0.009 \text{ ft/s}^2$ .