

Algebra II – Chapter 5A Practice

Simplify.

1. $\left(\frac{5}{4}\right)^{-3}$
 $\left(\frac{5}{4}\right)^3$
 $\frac{125}{64}$

2. $\frac{18c^3a^4b^5}{3a^2c^4b^7}$
 $\frac{6a^2}{c^2b^2}$

3. $(2x^{-3})(7xy^2)^2$
 $(2x^{-3})(49x^2y^4)$
 $98y^4x^{-1}$
 $\frac{98y^4}{x}$

4. $\sqrt[5]{384t^{12}x^9z^2}$
 $\sqrt[5]{2^7 \cdot 3 \cdot t^{12} x^9 z^2}$
 $2^1 \cdot 2^{2/5} \cdot 3^{1/5} \cdot t^{2 \cdot 2/5} \cdot x^{9/5} \cdot z^{2/5}$
 $2t^2x(\sqrt[5]{2^2 \cdot 3t^4x^4z^2})$
 $2t^2x(\sqrt[5]{12t^2x^4z^2})$

5. $\sqrt[6]{68x^3z^9}$
 $\sqrt[6]{2^2 \cdot 17x^3z^9}$
 $2^{1/3} \cdot 17^{1/6} x^{1/2} z^{3/2}$
 $2x^{1/2}z^{3/2}(\sqrt{17xz})$

6. Solve For x: $4^{3x+2} = 8^{x-5}$
 $2^{2(3x+2)} = 2^{3(x-5)}$
 $6x+4 = 3x-15$
 $3x = -19$
 $x = -19/3$

7. Write the equation of the exponential line through:

a. $(3, 320)$ & $(6, 20.48)$

$y = a(b)^x$

① $320 = a(b)^3$
 $20.48 = a(b)^6$

③ $320 = a(0.4)^3$
 $320 = a(0.064)$
 $5000 = a$

② $\frac{20.48}{320} = \frac{a(b)^6}{a(b)^3}$
 $(0.064)^{1/3} = (b^3)^{1/3}$
 $0.4 = b$

$y = 5000(0.4)^x$

b. $(1.7, 2)$ & $(-1, 5)$

$2 = a(b)^{1.7}$
 $5 = a(b)^{-1}$

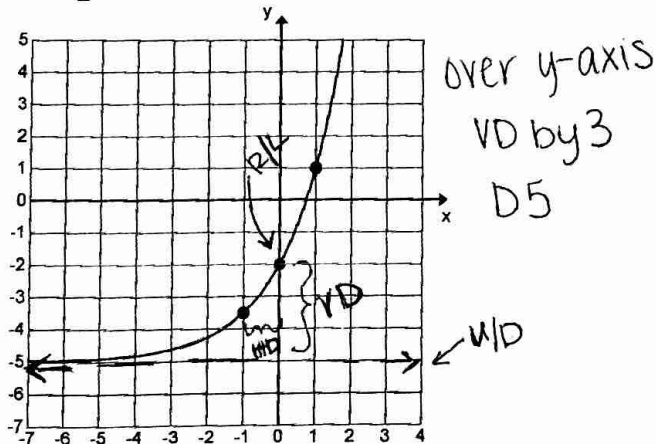
$2 = a(1.2)^1$
 $b = a$

$2 = a(b)^{1.7}$
 $5 = a(b)^{-1}$
 $(1.44)^{1/2} = (b^2)^{1/2}$
 $1.2 = b$

$y = 6(1.2)^x$

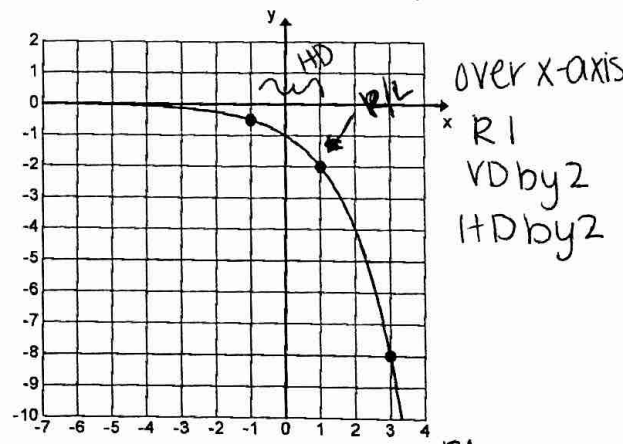
Find the equation for the given graph.

5. base $\frac{1}{2} \rightarrow y = \frac{1}{2}^x$



$y = 3\left(\frac{1}{2}\right)^{-x} - 5$

6. Base 4 $y = 4^x$



$y = -2(4)^{\frac{x-1}{2}}$
 x-axis, VD, HD, R1