

Math 160 - Section R.5 - Converting rational exponents to/from radical expressions

Name _____

THIS SKILL IS VERY IMPORTANT! IT WILL BE USED WHEN FINDING DERIVATIVES.

On 1-10, convert to an exponential expression of the form A^R where R is a rational number exponent.

1) $\sqrt{t^4} = t^{(4/2)} = t^2$

2) $\sqrt[7]{b^3} = t^{(3/7)}$

3) $\sqrt[6]{c^8} = c^{(8/6)} = c^{(4/3)}$

4) $\sqrt[11]{t^4} = t^{(4/11)}$

5) $\frac{1}{\sqrt[3]{a^{11}}} = a^{(-11/3)}$

6) $\frac{1}{\sqrt[3]{b^9}} = b^{(-9/3)} = b^{(-3)}$

7) $\frac{1}{\sqrt{s^6}} = s^{(-6/2)} = s^{(-3)}$

8) $\frac{2}{\sqrt{t^{11}}} = 2 t^{(-11/2)}$

9) $\frac{1}{\sqrt{x^3 + b}} = (x^3 + b)^{(-1/2)}$

10) $\sqrt{(x + 9)^3} = (x + 9)^{(3/2)}$

14) $\frac{1}{y^{-7/5}} = y^{(7/5)} = \sqrt[5]{y^7}$

15) $r^{-3/13} = \frac{1}{r^{(3/13)}} = \frac{1}{\sqrt[13]{r^3}}$

16) $d^{-11/6} = \frac{1}{d^{(11/6)}} = \frac{1}{\sqrt[6]{d^{11}}}$

17) $\frac{1}{s^{1/2}} = \frac{1}{\sqrt{s}}$

18) $(x^2 - 7)^{-1/2} = \frac{1}{\sqrt{x^2 - 7}}$

19) $(y^2 - 5)^{1/4} = \sqrt[4]{y^2 - 5}$

On problems 11 - 19, convert to an expression using radical notation and no negative exponents.

11) $x^{1/7} = \sqrt[7]{x}$

12) $b^{2/5} = \sqrt[5]{b^2}$

13) $t^{14/3} = \sqrt[3]{t^{14}}$