

Name \_\_\_\_\_

**Learning Target: I can work with Properties of Exponents and Power Functions.**

Use exponent rules to simplify. Do not leave any negative exponents. **(Learning Target #5 on LT's sheet)**

1)  $5^{-3}$

2)  $-6^2$

3)  $-3^{-4}$

4)  $(\frac{2}{7})^{-1}$

5)  $a^8 \cdot a^{-3}$

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

7)  $(c^4)^5$

8)  $(8x^2)^3$

9)  $\frac{d^0}{e^{-3}}$

10)  $x^6 \cdot x^6$

11)  $4x^6 \cdot 2x^6$

12)  $(-5x^3)(-2x^4)$

13)  $\frac{72x^7}{6x^2}$

14)  $(\frac{6x^5}{3x})^3$

15)  $(\frac{20x^7}{4x})^{-2}$

**Learning Target: I can solve Power functions. (Learning Target #3 on LT's sheet)**

Solve the following power functions equations. (These are exactly like linear equation steps. The very last step you will raise both sides to the reciprocal power)

16)  $x^4 = 3000$

17)  $6x^{2.5} = 90$

18)  $x^7 = 4000$

19)  $x^{.5} = 28$

20)  $x^{-3} = 247$

21)  $5x^{\frac{1}{4}} + 6 = 10.2$

22)  $3x^{-2} = 2x^4$

**Learning Target: I can work with rational exponents. (Learning target #6,#7 on LT's sheet)**

Re-write each expression into rational notation

1)  $\sqrt[6]{a}$

2)  $\sqrt[10]{b^8}$

3)  $\frac{1}{\sqrt{c}}$

4)  $(\sqrt[3]{d})^7$

**Re-write the radical notation into rational notation and solve**

5)  $\sqrt[4]{a} = 14$

6)  $\sqrt[9]{b^5} = 26$

7)  $(\sqrt[3]{c})^8 = 47$

8)  $\sqrt[6]{a} = 4.2$

9)  $(\sqrt[10]{b})^8 = 14.3$

10)  $(\sqrt[3]{d})^7 = 23$

**Learning Target: I can work with Properties of Exponents to simplify expressions: (Learning Target #5 on Lt's sheet)**

11)  $(3x^3)x^3$

12)  $(2x^3)(2x^2)^3$

13)  $\frac{6x^4}{30x^5}$

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

15)  $\frac{-72x^5y^5}{-4x^3y^1}$