

Name _____

Date _____

Advanced Algebra

Unit 3: Exponential, Log and Power Functions

Solve the following Power Functions- **Assignment #5**

Show all the work to get to the final step of doing the reciprocal power.

You will get decimal answers sometimes.

1) $3x^2 + 6 = 1800$

$x^2 = 598$ now Raise both sides to $\frac{1}{2}$ power
 $(x^2)^{\frac{1}{2}} = (598)^{\frac{1}{2}}$

#1 Final Answer

24.45

2) $4x^{\frac{1}{4}} - 3 = 1240$

#2 Final Answer

3) $\frac{x^8}{4} + 6 = 14$

$x^8 = 103996$ now Raise both sides to $\frac{1}{8}$ power
 $(x^8)^{\frac{1}{8}} = (103996)^{\frac{1}{8}}$

#3 Final Answer

$x = 4.2376$

4) $\frac{3x^5}{4} + 4 = 1800$

$x^5 = \left(\frac{7184}{3}\right)$ now Raise both sides to $\frac{1}{5}$ power
 $(x^5)^{\frac{1}{5}} = \left(\frac{7184}{3}\right)^{\frac{1}{5}}$

#4 Final Answer

$x = 4.71077$

Assignment #5

5) $x^{\frac{1}{5}} + 8 = 13$

$x^{\frac{1}{5}} = 5$ now raise both sides to 5th power

$$(x^{\frac{1}{5}})^5 = 5^5$$

#5 final answer

3125

6) $x^{\frac{3}{4}} + 6 = 160$

$x^{\frac{3}{4}} = 154$ now raise both sides to $\frac{4}{3}$ power

$$(x^{\frac{3}{4}})^{\frac{4}{3}} = (154)^{\frac{4}{3}}$$

#6 Final answer

825.46

7) $2x^{\frac{1}{3}} + 4 = 29$

$$2x^{\frac{1}{3}} = 25$$

$$x^{\frac{1}{3}} = 12.5$$

#7 Final answer

1953.13

8) $9x^3 + 6 = 1400$

$x^3 = \left(\frac{1394}{9}\right)$ now raise both sides to $\frac{1}{3}$ power

$$(x^3)^{\frac{1}{3}} = \left(\frac{1394}{9}\right)^{\frac{1}{3}}$$

#8 Final answer

$x = 5.37$

9) $10x^{\frac{1}{3}} + 4 = 18$

$$x^{\frac{1}{3}} = \left(\frac{14}{10}\right)$$

now raise both sides to 3rd power

$$x = \left(\frac{14}{10}\right)^3$$

#9 Final answer

$x = 2.744$

10) $6x^{\frac{2}{3}} - 6 = 18$

$$x^{\frac{2}{3}} = \frac{24}{6}$$

$$(x^{\frac{2}{3}})^{\frac{3}{2}} = \left(\frac{24}{6}\right)^{\frac{3}{2}}$$

$$x = 8$$

#10 Final answer

8