

Name:
Algebra 2

Date:

SOLVING EQUATIONS WITH EXPONENTS

1. Solve the following equations. It is usually easiest to isolate the term with the x and take the opposite (reciprocal) power. Find all **real** solutions only. Think about when there may be more than one solution (or no solutions).

a. $x^2 = 6$

b. $x^{2/3} = 4$

c. $(x + 1)^{1/3} = -2$

d. $\frac{(x + 1)^3}{9} = -3$

e. $(x - 3)^{1/2} = 4$

f. $(x - 3)^2 = -4$

g. $3(x - 1)^{3/2} + 1 = 25$

h. $x^{-2} = 16$

i. $(2x - 1)^{-1/2} + 1 = 4$

j. $(x - 3)^{-1/2} = \frac{1}{5}$

k. $3(x - 2)^2 + 5 = 29$

l. $|x| = 5$

m. $2|x - 3| - 1 = 9$

n. $\frac{1}{2}(x - 4)^{-3/2} = 4$

2. Solve by taking roots with your calculator. Watch out for where there may be two answers (or no answers). Also be careful to communicate properly with your calculator and use parentheses around the fractional exponent! Your answers should be rounded to two decimal places.

a. $x^7 = 18$

b. $x^4 = 18$

c. $2x^5 - 6 = 196$

d. $(x - 2)^8 = 2198$

ANSWERS

1a. $\pm\sqrt{6}$ b. 8, -8 c. -9 d. -4 e. 19 f. not real g. 5 h. $\frac{1}{4}$ i. $\frac{5}{9}$ j. 28

k. $2 \pm 2\sqrt{2}$ l. ± 5 m. -2, 8 n. $\frac{17}{4}$

2a. 1.51 b. ± 2.06 c. 2.52 d. 4.62, -0.62