Exponential Equations—Practice

/18 Name: _____

Show any steps you use throughout for full marks.

1. Solve.
   a. $3^4 = 3^x$
   c. $3^4 = 9^x$
   e. $(-2)^5 = (-2)^{2x+1}$
   b. $[\frac{1}{2}]^3=[\frac{1}{2}]^{x-2}$
   d. $4^{x-1} = 2^5$
   f. $(-3)^{1+2x} = (-3)^3$

2. Solve.
   a. $4^{2x+3} = 4^{1-3x}$
   c. $3^{x-1} = 9^{x-2}$
   e. $(-3)^{x-2} = (-27)^{2x+3}$
   b. $(-2)^x = (-2)^{3x-1}$
   d. $4^{x+2} = 16^{2x-3}$
   f. $(-8)^{3x+1} = (-2)^{x-2}$

3. Solve. (Answers to the nearest tenth).
   a. $3^x = 176$
   c. $4^x = 456$
   e. $987=9^{2x}$
   b. $3^x=4^2$
   d. $4^4=5^x$
   f. $6^{-2}=4^x$

Answers:

1. a. 4 b. 5 c. 2 d. $\frac{3}{2}$ e. 2 f. 1 2. a. $-\frac{2}{5}$ b. $\frac{1}{2}$ c. 3 d. $\frac{8}{3}$ e. $-\frac{11}{5}$
2. f. $-\frac{5}{8}$ 3. Teacher will take up later

3. a 4.7 b. 2.5 c. 4.3 d. 3.4 e. 1.5 f. -2.6