



Name

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Date

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1. Find x. (5 points)

$$2^{(5x-6)} = 2^{8x}$$

$$5x - 6 = 8x$$

$$-6 = 8x - 5x$$

$$-6 = 3x$$

$$x = -6/3 = -2$$

$$\boxed{x = -2}$$

2. Find x. (5 points)

$$5^x = 25^{(x-1)}$$

$$5^x = (5^2)^{x-1}$$

$$5^x = 5^{2x-2}$$

$$x = 2x - 2$$

$$\boxed{2 = x}$$

3. Find x. (5 points)

$$9^{x^2} = 3^{(3x+2)}$$

$$(3^2)^{x^2} = 3^{3x+2}$$

$$3^{2x^2} = 3^{3x+2}$$

$$2x^2 = 3x + 2$$

$$0 = 2x^2 - 3x - 2$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-2)}}{2(2)}$$

$$\frac{3 \pm \sqrt{25}}{4} = \frac{3 \pm 5}{4}$$

$$\boxed{x = 2}$$

$$\boxed{x = -1/2}$$

4. Find the amount of interests you will pay for a loan of \$2,000.00 at 11% for 6 years.
(BONUS 3 points if demonstrate the procedure and choose the correct answer)

- a. \$2112.55 *b*
b. \$112.55 *a*
c. \$1857.97 *d*
d. \$3857.97 *c*
e. \$253.65 *e*

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$A = 2,000 \left(1 + \frac{.11}{12} \right)^{6(12)}$$

$$A = 2,000 (1.923984)$$

$$A = 3,857.96$$

$$\text{Amount of interest} = 3857.96 - 2000 = \boxed{1857.96}$$