

Name: \_\_\_\_\_  
Date: \_\_\_\_\_  
Class: \_\_\_\_\_

Algebra  
Unit 6  
HW 6-4

1) Gabe is buying a pair of jeans at the store that are \$45. There is an 8% sales tax that he must pay. If he has a \$50 gift card will it cover the cost?

$$45(1.08) = 48.6$$

less than \$50 so yes

2) If the population of deer is currently 560 and is expected to decline by 5% in the next year, how many deer will be left? What % of the deer will remain?

if 5% decline, 95% left

$$560(0.95) = 532 \text{ remain}$$

3) Evaluate: 36% of 96

$$.36(96) = 34.56$$

4) Prestel currently makes \$8.50 per hour. His boss has promised him a 15% raise in his hourly earnings.

New salary?

$$8.50(\cancel{1.05})^{1.15} = 9.775$$

$$\underline{\underline{\$9.78}}$$

5) Imani's rent increased from \$560 per month to \$600 per month. Her friend, Ariana, had her rent increase from \$825 to \$875. Who had the larger percent increase in their rent?

$$\frac{600}{560}$$

$$1.0714$$

$$\boxed{7.14\% \text{ increase}}$$

larger

$$\frac{875}{825}$$

$$1.0606$$

$$6.1\% \text{ increase}$$

- 6) Niko had his savings increase by 5% this year. He started with \$350 in his account and calculated how much he had at the end of the year by using the following sets of calculations: How much after 3 years?

$$350(1.05) = 367.5(1.05) = 385.875(1.05)$$

$$= \boxed{405.17}$$

- 7) If  $f(x) = \left(\frac{8x^{-2}}{4}\right)^4$  Find  $f(-3)$  and  $f(4)$ .

$$f(4) = \left(\frac{8(4)^{-2}}{4}\right)^4 = \left(\frac{1}{2}\right)^4$$

$$= \left(\frac{1}{8}\right)^4 = \boxed{\frac{1}{4096}}$$

$$f(-3) = \left(\frac{8(-3)^{-2}}{4}\right)^4 = \left(\frac{8}{9}\right)^4$$

$$= \left(\frac{2}{9}\right)^4 = \boxed{\frac{16}{6561}}$$

- 8) Simplify (no negative exponents):  $\frac{10x^4y^6z}{2x^2y^{10}z^5}$

$$5x^2y^{-4}z^{-4} = 5x^2\left(\frac{1}{y^4}\right)\left(\frac{1}{z^4}\right)$$

$$\frac{5x^2}{y^4z^4}$$