

Name Key
CC Algebra: 8A

Date _____
Period _____

Percent and Money Word Problems

1. What would be the total cost of a new Gaming System that cost \$399 with an 8.5% tax?

$$399 + (399(.085))$$

$$399 + 33.92 \quad \downarrow \text{Tax!}$$

$$432.92$$

\$ 432.92

Round \$
to the
nearest
hundredth

2. Janie can spend at most \$75.00 for an outfit including 8% sales tax. Find some outfit prices that will keep her within her budget. Use the table to organize your information.

a)

Price before tax	Tax	Total	Within Budget?
\$70	$70(.08) = \$5.60$	$\$70 + \$5.60 = \$75.60$	No
\$65	$65(.08) = 5.20$	$65 + 5.20 = 70.20$	Yes
\$68	$68(.08) = 5.44$	$68 + 5.44 = 73.44$	Yes
\$69	$69(.08) = 5.52$	$69 + 5.52 = 74.52$	Yes
X	$X(.08)$	$X + X(.08) =$	

$1.08x$

b) What is the highest price the outfit could be? Write and simplify an inequality to represent the above situation. Then solve.

L	I	S	C
let x = the price of the outfit before tax	$x + .08x \leq 75$ $\frac{1.08x}{1.08} \leq \frac{75}{1.08}$ $x \leq 69 \frac{4}{9}$ <p>or</p> $x \leq 69.44$	Janie can spend at most \$69.44 before tax	$69.44(.08) = 5.52$ $69.44 + 5.52 = 75$ $75 \leq 75$ <hr/> $70(.08) = 5.60$ $70 + 5.60 = 75.60$ $75.60 \neq 75$

3. Write a simplified expression to represent the following:

a) The total cost of a flat screen television including a 6% tax. ^{Add}

L	E
let $x =$ the cost of the T.V. before the tax	$x + .06x$ $(1.06x)$

b) The cost of a shirt after a 25% discount. ^{sub}

L	E
let $x =$ the cost of the shirt before the discount	$x - .25x$ $(.75x)$

4. Todd received a 12% discount on a movie pass. He paid \$33.44. Write an equation to find the price before the discount. Then solve to find the price,

L	E	S	C
let $x =$ the price of the movie pass before the discount	$x - .12x = 33.44$ $\frac{.88x}{.88} = \frac{33.44}{.88}$ $x = 38$	The price of the movie pass before the discount was \$38	$38(.12) = 4.56$ $38 - 4.56 = 33.44$

5. Sam tips 18% at a restaurant. He paid \$25.96 for the bill, including the tip. Find the price of the meal before the tip.

L	E	S	C
let $x =$ the price of the meal before the tip	$x + .18x = 25.96$ $\frac{1.18x}{1.18} = \frac{25.96}{1.18}$ $x = 22$	Sam paid \$22 for his meal before the tip	$22(.18) = 3.96$ $22 + 3.96 = 25.96$

6. Janelle tips 20% for service at restaurants. When she left a restaurant, she saw the total she paid for her meal was \$14.82. How much was the meal without the tip?

L	E	S	C
let x = the price of the meal B-y the tip	$x + .20x = 14.82$ $\frac{1.2x}{1.2} = \frac{14.82}{1.2}$ $x = 12.35$	Janelle's meal was \$12.35 B-y the tip	$12.35(.20) = 2.47$ $12.35 + 2.47 = 14.82$

7. Ellie received a 15% discount for renewing a magazine subscription. She paid \$26.35. Write an equation to find the price before the discount. Then solve to find the price.

L	E	S	C
let x = the price of the magazine subscription B-y the discount	$x - .15x = 26.35$ $\frac{.85x}{.85} = \frac{26.35}{.85}$ $x = 31$	The price of the magazine subscription B-y the discount was \$31	$31(.15) = 4.65$ $31 - 4.65 = 26.35$

8. Kristin can afford to spend at most \$50 for a birthday dinner at a restaurant, including a 15% tip. What is the most amount of money that Kristin can spend before the tip?

L	E	S	C
let x = the cost of Kristin's birthday dinner B-y the tip	$x + .15x \leq 50$ $\frac{1.15x}{1.15} \leq \frac{50}{1.15}$ $x \leq 43 \frac{11}{23}$ or $x \leq 43.47826087...$	Kristin can spend at most \$43.47 on dinner. B-y the tip	$43.47(.15) = 6.52$ $43.47 + 6.52 = 49.99$ $49.99 \leq 50$ <hr/> $50(.15) = 7.50$ $50 + 7.50 = 57.50$ $57.50 \neq 50$

9. Mark buys 5 movie tickets online for \$60. The online fee for each ticket is \$1.50. What is the price of each ticket? Write an equation and solve.

L	E	S	C
let x = the price of one movie ticket B-y the online fee	$5x + 5(1.50) = 60$ $5x + 7.50 = 60$ $\frac{-7.50}{5} \quad \frac{-7.50}{5}$ <hr/> $5x = 52.50$ $\frac{5x}{5} = \frac{52.50}{5}$ $x = 10.50$	The price of 1 movie ticket is \$10.50	$5(10.50) = 52.50$ $5(1.50) = 7.50$ $52.50 + 7.50 = 60 \checkmark$

10. Leon paid \$26.50 for a shirt with a sales tax of 6% included but he doesn't remember the price without tax. Write an equation and solve to find the price of the shirt before tax.

L	E	S	C
let x = the price of the shirt B-y the tax	$x + .06x = 26.50$ $\frac{1.06x}{1.06} = \frac{26.50}{1.06}$ $x = 25$	Leon paid \$25 for the shirt B-y the tax	$25(.06) = 1.50$ $25 + 1.50 = 26.50 \checkmark$

11. To rent a power washer, a shop charges a deposit, plus an hourly rate. Bob can determine how much he will pay for a rental lasting "t" hours by using the expression $10t + 25$. What does the coefficient "10" represent?

A) the length of time of the rental

B) the insurance for the power washer

C) the hourly rate for renting the power washer

D) the deposit for the power washer

12. The math club had 400 posters to sell as a fundraiser. It costs \$3.00 per poster to have them printed. The club sells the posters for \$10 each. If a formula was written to find the club's profit where $P(n)$ is the club's profit when "n" posters were sold, it would look like this:

$$P(n) = 10n - 1200$$

What would $10n$ represent? The total cost of "n" posters for the public

What would \$1200 represent? the amount it costs the math club to get 400 posters printed

How can you use the formula to find the profit from the sale of 200 posters?

$$p(n) = 10n - 1200$$

$$p(200) = 10(200) - 1200$$

$$p(200) = 2000 - 1200$$

$$p(200) = 800$$

They would have an \$800 profit for selling 200 posters

13. On Day 1, Jack rode his bicycle 80 miles in 8 hours. The formula to find distance is $\text{rate} \times \text{time} = \text{distance}$.

a) Find Jack's rate. Solve for "r."

$$D = RT$$

$$\frac{80}{8} = \frac{R(8)}{8} \quad R = 10$$

Jack's rate is 10mph

OR

$$\frac{D}{T} = \frac{RT}{T}$$

$$R = \frac{D}{T}$$

$$R = \frac{80}{8} \quad R = 10$$

b) If Jack continues riding at his average rate for the 2nd day at a time of "t," write an equation to represent his total distance for the two days.

1st day: 80

2nd day: 10T

1st day + 2nd day = total

$$80 + 10T = \text{Total}$$

$$\boxed{80 + 10T}$$

c) How many miles did he drive after traveling 9 hours the second day?

$$80 + 10T$$

$$80 + 10(9)$$

$$80 + 90$$

$$170$$

170 miles

14. To get the "combo-deal" Jolie must spend more than \$18. She is planning on ordering grilled chicken for \$10 and some packages of carrots that cost \$1.75 each. Write an inequality to represent the above situation.

let
 $x =$ the #
of packages of
carrots

$$1.75x + 10 > 18$$

Which number of packages of carrots will NOT allow Jolie to purchase the combo-deal?
(Must show algebraic work)

A) 4

B) 5

C) 6

D) 7

$$\begin{array}{r} 1.75x + 10 > 18 \\ \hline - 10 - 10 \end{array}$$

$$\begin{array}{r} 1.75x > 8 \\ \hline 1.75 1.75 \end{array}$$

$$x > 4 \frac{4}{7}$$

OR

$$x > 4.571428571\dots$$