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CHALLENGE PACKET

1. Complete each working backwards (algebra) problem below.

a. _____ x 23% = 158.47

e. _____ x 12% = 782.76

b. 789 x _____ = 43.395

f. 652 x _____ = 91.28

c. _____ x 15% = 1011.75

g. _____ x 6% = 31.38

d. 845 x _____ = 23.35

h. 562 x _____ = 50.58

2. Complete each working backwards (algebra) story problem below.

a. You and a friend go out to eat. Your total comes to \$32.40. You leave \$6.48 as a tip. What percent tip did you leave?

b. You are shopping for socks in Washington. Your total comes to \$45.60 and then you pay an additional \$3.19 in taxes. What percent did you pay in taxes?

c. You are at Target shopping for socks and have a 35% off coupon. You save \$52.50. What was your original?

d. You are out to eat. You leave a 18% tip of \$3.60. What did the meal cost?

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- e. You and a friend go out to eat after buying socks. Your total comes to \$60 and you leave a \$12 tip. What percent tip did you leave?
- f. You are out shopping for socks. Your total comes to \$45. You have a coupon that saves you \$6.75. What percent off did you have?
- g. You are out shopping. Your total comes to \$90. You used a coupon that saved you \$27. What percent off did you have?
- h. You are out to eat. You leave a 20% tip of \$8. What was your original bill?
3. Complete each problem below (mixed)
- | | |
|----------------------|------------------------|
| a. _____ x 12% = 60 | e. 453 x _____ = 67.95 |
| b. 45 x _____ = 9 | f. 150 x 7.25% = _____ |
| c. 34.5 x 6% = _____ | g. _____ x 9% = 936 |
| d. _____ x 8% = 5.12 | h. 60 x _____ = 15 |

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i. $87.6 \times 40\% =$ _____

k. $874 \times$ _____ $= 131.1$

j. _____ $\times 7\% = 84$

l. $225 \times 33\% =$ _____

4. Complete each story problem below (mixed)

a. You are out to eat and leave a 18% tip on a bill for \$90.45. What did you leave for a tip?

b. You are out to eat and you leave a 20% tip of 16.34. What was the original bill?

c. You are out to eat and leave a 1.50 tip on a \$12 meal. What percent did you leave?

d. You are out shopping. Your total comes to \$45. You have a 20% off coupon. How much do you save?

e. You are out shopping. You have a coupon that saves you \$15. If your bill before the coupon was \$60. What percent did you save?

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- f. You are out shopping. You save \$30 with a 20% off coupon. What was the original cost?

- 5. Complete each problem below (challenge)
 - a. You are out shopping. The original price of the dress you bought was \$60. You spent \$45. What percent did you save?

 - b. You are out to eat. Your bill comes to \$50. After leaving a tip, your total comes to \$65. What percent did you leave?

 - c. You are in washington shopping. Your total comes to \$64 and then \$69.12 after taxes. What percent did you pay in taxes?

 - d. You are out shopping. Your total comes to \$100. You use a coupon which brings your total to \$75. What percent off did you get?

 - e. You are out shopping. Your total comes to \$3.50. You use a coupon which brings your total to \$2.50. What percent off did you get?

- 6. CHALLENGE. There is more than one way to solve tip, tax, discount problems. For now, we have been calculating tip, tax, discount by multiplying by the percent and then adding

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that to the original value. There is a way to do it with only using multiplication that is a short cut.

a. Answer the following questions below.

- i. If you save 20%, what percent of the original do you pay?
- ii. If you save 35%, what percent of the original do you pay?
- iii. If you save 50%, what percent of the original do you pay?
- iv. If you pay a 20% tip, what percent of the original do you pay? Think about that you pay the original and the tip.
- v. If you pay a 6% sales tax, what percent of the original do you pay? Think about that you pay the original and the tax.

b. You are out shopping and have a 20% off coupon. Your total comes to \$50

- i. Calculate the new total by finding the discount and subtracting.
- ii. Calculate the new total by finding the percent you pay of the original?
- iii. Are the answers the same?

c. You are out to eat and you leave a 15% tip. Your total comes to \$60.

- i. Calculate the total by finding the tip and then adding it on.

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- ii. Calculate the total by finding the percent of the original you pay. Hint, you pay the full 100% of the original and then an additional 15% for the tip.

- iii. Are the answers the same?

- d. You are at a grocery store in washington. Your total comes to \$240. There is a 6% sales tax.
 - i. Calculate the total by finding the tax and adding it on.

 - ii. Calculate the total by finding the percent of the original you pay. Hint, you pay the full 100% of the original and then an additional 6% for the tax.

 - iii. Are the answers the same?