One and Two Step Equations

AND

Percents

Name_____

One-Step Equations

Date_____ Period_____

Solve each equation.

1) $26 = 8 + v$

2) $3 + p = 8$

3) $15 + b = 23$

4) $-15 + n = -9$

5) $m + 4 = -12$

6) $x - 7 = 13$

7) $m - 9 = -13$

8) $p - 6 = -5$

9) $v - 15 = -27$

10) $n + 16 = 9$

11) $-104 = 8x$

12) $14b = -56$

13) $-6 = \dfrac{b}{18}$

14) $10n = 40$

15) $\dfrac{v}{8} = 2$

16) $16 = \dfrac{k}{11}$

17) $-15x = 0$

18) $-17x = -204$

19) $21 = -7n$

20) $\dfrac{m}{4} = -13$

21) $-126 = 14k$

22) $-143 = -11x$

23) $-16 + x = -15$

24) $-5 = \dfrac{a}{18}$

25) $-17 = x - 15$

26) $n - 8 = -10$

27) $\dfrac{v}{7} = 8$

28) $a + 11 = 20$

29) $-7 + m = 8$

30) $18 + m = 8$

Solving Two Step Equations Algebraically

Solve each equation. Check your solution.

1. $2x + 1 = 9$

2. $5b + 2 = 17$

3. $3w + 5 = 23$

4. $\frac{3}{8}n + 1 = -25$

5. $4t - 2 = 14$

3

Name _____ Period _____ Date _____

Solving One-Step Equations 1

You must show your work to get credit!! Check your answer.

Adding and Subtracting

1) $y + 6 = 20$

2) $x - 10 = 12$

3) $12 + z = 15$

4) $2 + n = 16$

5) $a + 4 = 14$

6) $m - 5 = -10$

7) $4 + b = 30$

8) $10 + c = 25$

9) $x - 60 = 20$

10) $g - 16 = 4$

11) $x - 15 = -20$

12) $w + 14 = 10$

13) $r - 18 = 27$

14) $13 + k = 25$

15) $f - 16 = 34$

16) $j + 17 = 19$

17) $r - 16 = 5$

18) $9 + t = 56$

4

Multiplying and Dividing

19) $2x = 16$

20) $15 = 3t$

21) $\dfrac{k}{2} = 6$

22) $3h = 27$

23) $\dfrac{j}{3} = 4$

24) $6p = 30$

25) $\dfrac{n}{10} = 40$

26) $\dfrac{h}{4} = 15$

27) $9s = 81$

28) $14 = 2c$

29) $26 = 13d$

30) $6 = \dfrac{m}{3}$

31) $7 = \dfrac{p}{5}$

32) $4w = 16$

33) $\dfrac{f}{3} = 9$

34) $20 = 4x$

35) $3z = 36$

36) $10 = \dfrac{j}{6}$

Homework Practice

Solve Two-Step Equations

Solve each equation. Check your solution.

1. $4h + 6 = 30$

2. $\frac{2}{7}y + 5 = -9$

3. $-3t + 6 = 0$

4. $-8 + 8g = 56$

5. $5k - 7 = -7$

6. $19 + 13x = 32$

7. $-\frac{1}{5}b - \frac{2}{5} = -2$

8. $1n + 1 = 11$

9. $\frac{3}{4}f + 5 = -5$

10. $5d - 3.3 = 7.2$

11. $3 = 0.2m - 7$

12. $1.3z + 1.5 = 5.4$

13. KITTENS: Kittens weigh about 100 grams when born and gain 7 to 15 grams per day. If a kitten weighed 100 grams at birth and gained 8 grams per day, in how many days will the kitten triple its weight?

14. TEMPERATURE: Room temperature ranges from 20°C to 25°C. Find the range of room temperature in °F. Use the formula $F - 32 = 1.8C$ to convert from the Celsius scale to the Fahrenheit scale.

7

Name_____

Two-Step Equations

Date_____ Period_____

Solve each equation.

1) $6 = \dfrac{a}{4} + 2$

2) $-6 + \dfrac{x}{4} = -5$

3) $9x - 7 = -7$

4) $0 = 4 + \dfrac{n}{5}$

5) $-4 = \dfrac{r}{20} - 5$

6) $-1 = \dfrac{5 + x}{6}$

7) $\dfrac{v + 9}{3} = 8$

8) $2(n + 5) = -2$

9) $-9x + 1 = -80$

10) $-6 = \dfrac{n}{2} - 10$

11) $-2 = 2 + \dfrac{v}{4}$

12) $144 = -12(x + 5)$

13) $-15 = -4m + 5$

14) $10 - 6v = -104$

15) $8n + 7 = 31$

16) $-9x - 13 = -103$

17) $\dfrac{n+5}{-16} = -1$

18) $-10 = -10 + 7m$

19) $-10 = 10(k - 9)$

20) $\dfrac{m}{9} - 1 = -2$

21) $9 + 9n = 9$

22) $7(9 + k) = 84$

23) $8 + \dfrac{b}{-4} = 5$

24) $-243 = -9(10 + x)$

Solving *Type 1* Percent Problems

"Finding the percent of a Number"

Objective: Students will find percent of a number algebraically and apply it to solving real world problems.

$$\frac{part}{whole} = \frac{\%}{100}$$

1. 25% of 60 is what number?

2. Florida State University in Tallahassee Florida had 27,015 students. 40% of the students are women. How many students are women?

3. A shirt that originally costs $25 is on sale for 30% off. What is the discount? What is the sale price?

10

4. After eating at a restaurant, your bill before tax is $52.60. The sales tax in CT is 6.35%. You decide to leave a 20% tip (gratuity) for the waiter because your service was excellent. The tip is based on the pre-tax amount.

   a) How much of a tip do you leave?

   b) How much is the total bill, including tax and tip?

5. A woman put $580 into a savings account for one year. The rate of interest on the account was $6\frac{1}{2}\%$. How much was the interest for the year in dollars and cents? (Round to the nearest cent)

11

Solving *Type 2* Percent Problems

"Finding the Percent One Number is of Another"

Objective: Students will find the percent one number is of another algebraically and apply it to solving real world problems.

$$\frac{part}{whole} = \frac{\%}{100}$$

1. **What percent of 85 is 51?**

2. **Damien bought a used car for $9,200. He made a down payment of $1,840. What is the percent of the amount of the down payment?**

3. **An item priced at $10.20 has a sales tax of $0.51. Find the sales tax rate expressed as a percent.**

4. You answered 21 out of 25 questions correctly on a test. Did reach your goal of getting at least 80%?

5. The regular price of a phone was$228. During a sale, its price was marked down by $45.50. What was the percent discount?

Solving *Type 2* Percent Problems ~ **Homework**

"Finding the Percent One Number is of Another"

Objective: Students will find the percent one number is of another **algebraically** and apply it to solving real world problems.

$$\frac{part}{whole} = \frac{\%}{100}$$

1. What percent of 32 is 4?

2. Craig just finished reading 120 pages of his college history assignment. If the assignment is 125 pages, what percent of it has Craig read so far?

3. On average, Thomas gets a hit 24 out of 75 times at bat. What percent of the time does Thomas get a hit?

4. Of Canada's total area of 9,976,140 km^2, 755,170 km^2 is water. To the nearest tenth of a percent, what part of Canada is water?

5. The original price of a sofa was $1,500. During a sale, its price was marked down by $225. What was the percent discount?

6. A raw apple weighing 5 oz contains about 4 oz of water. What percent of the apple is water?

Solving *Type 3* Percent Problems

"Finding the Number When the Percent is Known"

Objective: Students will find the number when the percent is known algebraically and apply it to solving real world problems.

$$\frac{part}{whole} = \frac{\%}{100}$$

1. 15% of what number is 18?

2. Nick scored 80% on a test. He answered 60 questions correctly. What was the total number of questions on the test?

3. In a small school district, 25% of the teachers teach core math. If there are 50 core math teachers, how many teachers are there in the small school district?

4. A shirt is on sale for 40% off. The sale price is $12.

  a) What was the original price?

  b) What was the discount?

5. A salesperson receives 3% commission on sales. If he earns $180 in commission, what is the amount of his sales?

Solving *Type 3* Percent Problems ~ <u>Homework</u>

"Finding the Number When the Percent is Known"

Objective: Students will find the number when the percent is known **algebraically** and apply it to solving real world problems.

$$\frac{part}{whole} = \frac{\%}{100}$$

1. 14 is 28% of what number?

2. 21 seventh grade students received the Presidential Physical Fitness award. This is 15% of the seventh grade class. How many students are in seventh grade?

3. You completed 28 problems of your math homework. This represents 87.5% of the problems assigned to you. How many problems were you given?

4. Without doing any calculations, choose the equation that you cannot use to answer the question.

24 is 60% of what number?

a) $\dfrac{24}{w} = \dfrac{60}{100}$

b) $24 = 0.6w$

c) $\dfrac{24}{60} = w$

d) $24 = \dfrac{3}{5}w$

5. At Ruby Tuesday's you left the waiter $4.40 for a tip. This was based on 16% of your subtotal.

a) What was the subtotal?

b) What is the total bill including sales tax and tip?

Tax and Tip (Percent) Word Problems

1. A bicycle is on sale for $189.50. The sales tax rate is 5%. What is the total price?

2. Rosa and her friends are eating out for dinner. The bill was $45.80. They want to leave a 20% tip. How much should they leave for tip?

3. Rick bought 3 shirts for $18 each, 2 pair of socks for $3.99 a pair, and a pair of slacks for $45.00. The sales tax rate is 8.5%. How much did he pay?

4. The Rodriguez family went to dinner at Pasta Palace. Mr. Rodriguez ordered a meal for $6.25; Mrs. R ordered a meal for $7.50; the 2 children ordered individual pizzas for $4.99 each. The sales tax rate was 7.25% and they left a 15% tip. How much was the total bill?

5. Megan bought 50 beads for $9.95. She received a 10% discount, and she paid a sales tax of 6%. How much did she pay for the beads?

6. Eric bought a canoe for $333.75. The sales tax was 5.25%. What was his total cost?

7. Shinya went to the salon. The cost of her haircut was $16.00. He tipped the barber 15%. What was the total cost?

8. A snowmobile priced at $2,800 is on sale for 20% off. The sales tax rate is 8.25%. What is the sale price including tax?

9. Lisa's store collects 5% sales tax on every item sold. If she collected $22.00 in sales tax, what was the cost of the items her store sold?

22

10. Bill and his friends went to Red Robin. Their order consisted of 2 hamburgers t $5.49 each, a chicken sandwich for $6.25, an order of ribs for $12.99, and 4 sodas at $1.75 each. They paid a 7% sales tax, and a 20% tip. How much money did lunch cost them?

11. Mrs. Jones attended a Southern Living home party. She purchased a vase which cost $34.99. The shipping charge was $3.00, and 8.25% sales tax was paid on the subtotal which included the shipping charge. How much did she pay for the vase?

12. A bicycle shop is selling $500.00 bikes at 10% off. If the sales tax is 7% how much will the bike cost?

13. A magazine advertises that a subscription price of $29.99 (for 12 issues) represents a savings of 70% from the newsstand price. What is the price of one issue at the newsstand?

14. After the 15% sales tax the jeans were $11.50. How much was the jeans before the sales price?

15. At a restaurant you only have $20 to spend on dinner. In addition to the cost of the meal you must pay a 5% sales tax and leave a 15% tip. What is the most expensive item you can order?

16. At a restaurant you only have $30 to spend on dinner. In addition to the cost of the meal you must pay a 8% sales tax and leave a 20% tip. What is the most expensive item you can order?

Sales Discounts and Taxes
(Please use your graphic organizer to answer the following questions)
Please round all answers to the nearest cent. (hundredths place)

1. Mary works at a pizza place in her town. She receives 20% discount on any pizza she buys. If a medium pizza costs $8.99, what is the cost of Mary's pizza?

2. All students from the University get a 10% discount at all stores in the mall. If Julie spends $102.45 at the video store, how much money will her student discount save her?

3. The retail price of an aquarium set at the Pet Shop is $156. The aquarium sets are on sale at 25% off their retail price. There is a 6.35% sales tax. What is the final cost of the aquarium?

4. William is buying a new baseball bat from the local sporting-goods store. The baseball bat costs $134. The store is having a 30% off sale. If the sales tax rate is 6.35% in his state, what is the total cost of the bat?

Sales Discounts and Taxes #2

(Please use your graphic organizer to answer the following questions)
Please round all answers to the nearest cent. (hundredths place)

1. The stage crew for Spiderman the Musical wanted to order a large pizza after the show. They receive a 15% discount on any pizza they buy. If a large pizza costs $14.99, and there is a 6% tax on the item, what is the final cost of the pizza?

2. Lebron James wanted to buy a fresh new pair of pants at Kohls. The pants were 34.99 but he had a 20% off coupon. After his discount and a 6% sales tax, how much did he pay for the pants?

3. The retail price of an aquarium set at the Pet Shop is $286. The aquarium sets are on sale at 35% off their retail price. There is a 6.35% sales tax. What is the final cost of the aquarium?

4. Big Poppa is buying a new baseball bat from the local sporting-goods store. The baseball bat costs $235. The store is having a 30% off sale. If the sales tax rate is 6.35% in his state, what is the total cost of the bat?

4