

Pre-Algebra

Name: \_\_\_\_\_

Hour: \_\_\_\_\_

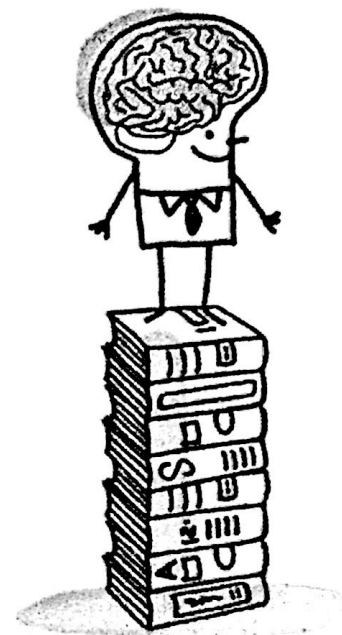
## TRIMESTER TWO FINAL EXAM REVIEW

Final exams are quickly becoming a regular expectation for you. In order to help you prepare for this, we will be taking another "final" exam. On \_\_\_\_\_, you will take the Pre-Algebra Trimester Two Final Exam. This exam will assess the content we covered in the second trimester.

You have already seen the final exam. It was the trimester 2 pre-assessment. Taking this exam again, provides you the opportunity to look at your growth and see your areas of strength and those that still may need some improving.

This review packet is a great resource as well as your unit tests and unit notes. The problems highlighted in this packet as well as those on your unit tests are very similar to those on the final exam. We will go over problems from this packet each day prior to the exam.

**This "final" will** be included in your grade. It will count as a test score. It is imperative that you learn how to prepare for a final and what to expect when it comes to taking these types of summative assessments.



# EXAM JAM

## CONTENT COVERED in the SECOND TRIMESTER:

- Equations
  - Solve One-Step Equations
  - Solve Two-Step Equations
  - Equations with Parenthesis and Like Terms
  - Variables on Both Sides
  - Recognizing Equations with One, None, or Infinite Solutions
  - Story Problems
- Inequalities
  - One-Step Inequalities
  - Multiple-Step Inequalities
  - Inequalities with Variables on Both Sides
  - Inequalities with Fractions
  - Graphing Inequalities
  - Writing Inequalities
  - Inequalities with No Solution
  - Inequalities with All Real Number Solutions
  - Story Problems
- Ratios
  - Writing Ratios
  - Simplifying Ratios
- Unit Rates
- Conversions
- Proportions
  - Writing Proportions
  - Solving with Cross-Products
  - Story Problems
- Constant of Proportionality
  - Independent and Dependent Variables
  - Graphing
  - Labeling Graph
- Percent
  - Percent and Decimals
  - Percent and Fractions
  - Percent and Proportion
  - Percent Problems with Proportions
  - Percent Problems with the Percent Equation
- Percent of Change
- Percent Applications
  - Wholesale
  - Retail
  - Discount
  - Tax and Tip
- Simple Interest
  - Find Interest
  - Find Account Balance

**Practice**

For use with pages 130-136

Tell whether the given value of the variable is a solution of the equation.

1.  $41 - 8x = -6x - 23; x = -9$

2.  $4x + 13 = -9 - 3(x + 9); x = -7$

3.  $-2(3x + 7) = -3(2x + 8); x = -5$

4.  $-9x + 7 = 25 + 2(5 - x); x = -4$

Solve the equation. Check your solution.

5.  $12x - 28 = -63 + 7x$

6.  $6x - 21 = 33 + 9x$

7.  $-15x = -5(3x + 7)$

8.  $16x - 19 = 113 - 6x$

9.  $-19x - 34 = 56 - x$

10.  $-6(4x + 3) = 6(-4x - 3)$

11.  $3(-2x + 5) = 11 - 4x$

12.  $14 - 9x = -8(10 + x)$

13.  $-3(8x + 11) = 6(-4x - 13)$

14.  $5x - 8 = 13 + 7(x + 3)$

15.  $15x + 24 = 8(10 + 3x) - 2$

16.  $-9x + 15 = -22 - 4(x + 12)$

## More Practice with Inequalities

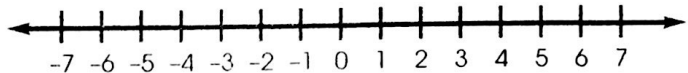
1.  $9x - 8 + x < 16 + 4x$



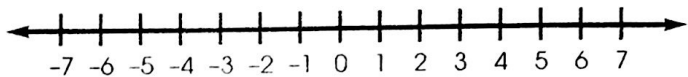
2.  $15y \geq -45$



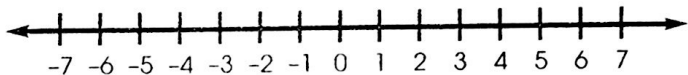
3.  $69 > c + 71$



4.  $17 + 11n - 13 \leq 4(n + 1) + 2n$



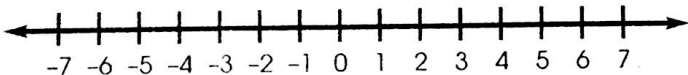
5.  $8(2 + x) > 3(x - 3)$



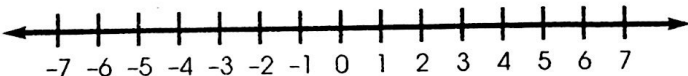
6.  $-4(3x + 2) \geq 40$



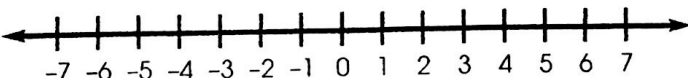
7.  $\frac{5}{3} < \frac{2}{3}x - 1$



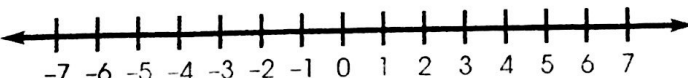
8.  $3n - 4(2n - 5) + n + 4 \geq 0$



9.  $18c + 11 - 26c < -3c(5 + 1) - 59$



10.  $8a - 2(2a + 5) \leq 2a(9 + 1) + 54$



# Ratios

Write each ratio as a fraction in simplest form.

$$3 \text{ to } 12 \rightarrow \frac{3}{12} = \frac{1}{4}$$

$$65 : 35 \rightarrow \frac{65}{35} = \frac{13}{7}$$

$$6 \text{ out of } 40 \rightarrow \frac{6}{40} = \frac{3}{20}$$

1. 196 to 7

8. 54 out of 87

2. 19 : 76

9. 112 : 140

3. 18 out of 27

10. 88 to 104

4.  $\frac{3}{8}$  to  $\frac{3}{4}$

11. 65 out of 105

5. 0.11 : 1.21

12. 65 : 117

6. 140 : 112

13. 165 to 200

7. 18 to 27

14. 168 : 264

**Practice**

For use with pages 269-274

Tell whether the ratio is in simplest form. If not, write it in simplest form. Then, write the ratio in two other ways.

1. 4 to 18

2. 4 : 6

3.  $\frac{7}{9}$

4.  $\frac{39}{13}$

5. 28 : 21

6. 17 to 44

7. 44 : 16

8. 63 to 18

9.  $\frac{48}{28}$

Order the ratios from least to greatest.

10. 7 : 2, 12 to 4,  $\frac{20}{6}$ , 21 to 14, 10 : 5

11.  $\frac{12}{16}$ , 7 to 10, 8 : 12, 9 to 15,  $\frac{4}{18}$

Find the unit rate.

12.  $\frac{72 \text{ people}}{3 \text{ buses}}$

13.  $\frac{20 \text{ ounces}}{2.5 \text{ servings}}$

14.  $\frac{288 \text{ mi}}{12 \text{ gal}}$

15.  $\frac{10.4 \text{ gal}}{4 \text{ min}}$

16.  $\frac{1125 \text{ calories}}{4.5 \text{ hours}}$

17.  $\frac{\$375}{15 \text{ shares}}$

**6.1**

Continued

**Practice**

For use with pages 269-274

Tell whether the ratios are equivalent.

18.  $\frac{12}{9}$  and  $\frac{24}{18}$

19. 14 : 4 and 21 : 8

20. 8 to 21 and 48 to 126

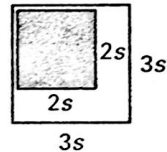
Write the equivalent rate.

21.  $\frac{8 \text{ calls}}{1 \text{ hour}} = \frac{? \text{ calls}}{1 \text{ day}}$

22.  $\frac{1400 \text{ students}}{40 \text{ teachers}} = \frac{? \text{ students}}{1 \text{ teacher}}$

23.  $\frac{12 \text{ km}}{1 \text{ h}} = \frac{? \text{ m}}{1 \text{ min}}$

24. Find the ratio of the area of the shaded square region to the area of the unshaded square region.



25. One box of cereal is 20 ounces and costs \$3. A smaller box of the same type of cereal is 12 ounces and costs \$2. Which box of cereal is the better buy? Explain.

# Proportions

Solve each proportion.

$$\frac{3}{7} = \frac{x}{49}$$

$$3 \cdot 49 = 7x$$

$$\frac{147}{7} = \frac{7x}{7}$$

$$21 = x$$

1.  $\frac{8}{6} = \frac{m}{27}$

9.  $\frac{18}{15} = \frac{6}{x}$

2.  $\frac{z}{3} = \frac{8}{15}$

10.  $\frac{121}{x} = \frac{220}{100}$

3.  $\frac{16}{40} = \frac{24}{c}$

11.  $\frac{1.6}{x} = \frac{14}{21}$

4.  $\frac{9}{p} = \frac{5}{2}$

12.  $\frac{x}{168} = \frac{66\frac{2}{3}}{100}$

5.  $\frac{1.8}{x} = \frac{3.6}{2.4}$

13.  $\frac{x}{32} = \frac{37\frac{1}{2}}{100}$

6.  $\frac{4}{5} = \frac{0.8}{y}$

14.  $\frac{16}{48} = \frac{x}{100}$

7.  $\frac{x}{2} = \frac{15}{5}$

15.  $\frac{0.12}{.25} = \frac{x}{100}$

8.  $\frac{18}{12} = \frac{24}{x}$

16.  $\frac{1.5}{x} = \frac{0.07}{0.14}$



# Problems Using Proportions

Three loaves of bread cost \$3.87. How much do 2 loaves cost?

$\frac{\text{number of loaves}}{\text{cost}}$

$$\frac{3}{3.87} = \frac{2}{x}$$

$$3x = 2 \cdot 3.87$$

$$\frac{3x}{3} = \frac{7.74}{3}$$

$$x = 2.58$$

2 loaves cost \$2.58

1. If 64 feet of rope weigh 20 pounds, how much will 80 feet of the same type of rope weigh?
2. If a 10 pound turkey takes 4 hours to cook, how long will it take a 14 pound turkey to cook?
3. An 18 ounce box of cereal costs \$2.76. How many ounces should a box priced at \$2.07 contain?
4. Mike and Pat traveled 392 miles in 7 hours. If they travel at the same rate, how long will it take them to travel 728 miles?
5. If 2 pounds of turkey costs \$1.98, what should 3 pounds cost?
6. If 2 liters of fruit juice cost \$3.98, how much do 5 liters cost?
7. A 12 ounce box of cereal costs \$.84. How many ounces should be in a box marked \$.49?
8. Janie saw an advertisement for a 6 ounce tube of toothpaste that costs \$.90. How much should a 4 ounce tube cost?

# Percents

Percent (%) means: per hundred  
out of a hundred  
hundredths  
2 decimal places

$$\frac{3}{4} \rightarrow \frac{3}{4} = \frac{x}{100}$$

$$300 = 4x$$

$$75 = x$$

$$\frac{3}{4} = 75\%$$

$$0.375 \rightarrow 37.5 \text{ hundredths} = 37.5\%$$

1.  $\frac{4}{5}$

10. 11.3

2.  $\frac{4}{7}$

11.  $\frac{11}{20}$

3. 0.22

12. 0.086

4. 2.5

13.  $\frac{7}{8}$

5.  $\frac{3}{8}$

14. 16.688

6. 0.006

15.  $\frac{7}{16}$

7. 1.125

16. 621.9

8.  $\frac{1}{2}$

17.  $\frac{5}{16}$

9.  $\frac{9}{40}$

18. 3.9932

# Working with Percents

80% of 30 =

$$\frac{80}{100} = \frac{x}{30}$$

$$100x = 2400$$

$$x = 24$$

1. 20% of 10 = \_\_\_\_\_ 4.  $9\frac{1}{2}\%$  of 20 = \_\_\_\_\_

2. 25% of 45 = \_\_\_\_\_ 5. 25% of 39 = \_\_\_\_\_

3. 88% of 15 = \_\_\_\_\_ 6. 16% of 90 = \_\_\_\_\_

\_\_\_\_% of 40 = 10

$$\frac{x}{100} = \frac{10}{40}$$

$$40x = 1000$$

$$x = 25 \quad 25\%$$

1. \_\_\_\_\_% of 25 = 15 4. \_\_\_\_\_% of 75 = 33

2. \_\_\_\_\_% of 30 = 10 5. \_\_\_\_\_% of 15 = 6

3. \_\_\_\_\_% of 4 = 7 6. \_\_\_\_\_% of 80 = 40

50% of \_\_\_\_ = 65

$$\frac{50}{100} = \frac{65}{x}$$

$$50x = 6500$$

$$x = 130$$

1. 20% of \_\_\_\_\_ = 15 4.  $33\frac{1}{3}\%$  of \_\_\_\_\_ = 41

2. 80% of \_\_\_\_\_ = 56 5. 80% of \_\_\_\_\_ = 16

3. 25% of \_\_\_\_\_ = 19 6. 30% of \_\_\_\_\_ = 15

## Problems with Percents

1. In a group of 60 children, 12 have brown eyes. What percent have brown eyes?
2. A salesman makes a 5% commission on all he sells. How much does he have to sell to make \$1500?
3. A sales tax of  $5\frac{3}{4}\%$  is charged on a blouse priced at \$42. How much sales tax must be paid?
4. A baby weighed 7.6 pounds at birth and  $9\frac{1}{2}$  pounds after 6 weeks. What was the percent increase?
5. A scale model of a building is 8% of actual size. If the model is 1.2 meters tall, how tall is the building?
6. The purchase price of a camera is \$84. The carrying case is 12% of the purchase price. Find the total cost including the carrying case.
7. The regular price of a record cost is \$15. Find the discount and the new price if there is a 20% discount.
8. A basketball team played 45 games. They won 60% of them. How many did the team win?
9. A test had 50 questions. Joe got 70% of them correct. How many did Joe get correct?
10. Diet soda contains 90% less calories than regular soda. If a can of regular soda contains 112 calories, how many calories does a can of diet soda contain?

**Practice**

For use with pages 357-361

In Exercises 1-6, use the given information to find the new price.

1. Wholesale price: \$5  
Markup percent: 125%
  2. Wholesale price: \$92  
Markup percent: 45%
  3. Wholesale price: \$210  
Markup percent: 30%
  4. Original price: \$33  
Discount percent: 20%
  5. Original price: \$76  
Discount percent: 35%
  6. Original price: \$106  
Discount percent: 70%
7. A video game is on sale for 15% off the retail price of \$45. A store is having a sale on all video games, providing an additional 20% off of all sale prices. What is the new sale price of the video game?

In Exercises 8-15, use the given information to find the total cost.

8. Original price: \$16  
Sales tax: 6%
9. Original price: \$28  
Sales tax: 4.5%
10. Original price: \$49  
Sales tax: 7%
11. Original price: \$82  
Sales tax: 5.5%
12. Food bill: \$55  
Sales tax: 8%  
Tip: 18%
13. Food bill: \$68  
Sales tax: 3%  
Tip: 20%

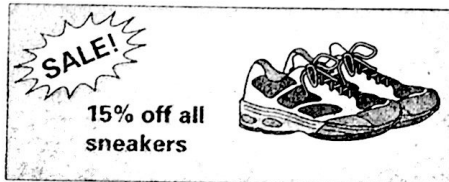
**Practice**

For use with pages 357-361

14. Food bill: \$80.40  
Sales tax: 5%  
Tip: 10%

15. Food bill: \$30  
Sales tax: 5.5%  
Tip: 15%

16. A shoe store is having a sale on sneakers. You want to buy a pair of sneakers that originally cost \$75. The sales tax is 4% and it will be applied to the sale price of the sneakers. What is the total cost of the sneakers?



17. The food bill for your breakfast is \$16.85. You leave a 10% tip. The sales tax is 5%. What is the total cost, to the nearest cent, of your meal?

In Exercises 18-21, use the given information to find the original price.

18. Retail price: \$99  
Markup percent: 80%

19. Retail price: \$67.60  
Markup percent: 150%

20. Sale price: \$32.45  
Discount percent: 45%

21. Sale price: \$48.79  
Discount percent: 15%

**7.7****Practice**

For use with pages 362–367

For an account that earns simple annual interest, find the interest and the balance of the account. Round your answer to the nearest cent, if necessary.

1.  $P = \$100, r = 3.5\%, t = 5$  years

2.  $P = \$525, r = 6\%, t = 9$  years

3.  $P = \$400, r = 4\%, t = 12$  years

4.  $P = \$1100, r = 2\%, t = 15$  years

5.  $P = \$900, r = 5\%, t = 45$  months

6.  $P = \$1050, r = 3.1\%, t = 27$  months

Find the unknown quantity for an account that earns simple annual interest.

7.  $A = \$875, P = \$500,$   
 $r = \underline{\quad?}, t = 30$  years

8.  $A = \$1128.50, P = \$925,$   
 $r = 5.5\%, t = \underline{\quad?}$

9.  $A = \$1213.60, P = \$800,$   
 $r = 4.7\%, t = \underline{\quad?}$

10.  $A = \$2719.50, P = \underline{\quad?},$   
 $r = 6.1\%, t = 20$  years

11. A \$700 bond earns 3.5% simple annual interest. What is the interest earned after 21 years?

12. Kendall loans Reagan \$500 and charges her 2% simple annual interest. Reagan promises to repay Kendall in 14 months. About how much will Reagan have to pay Kendall? Round your answer to the nearest cent.