Ratio, Rate and Proportions Unit Test
Math 8

Write each ratio as a fraction in simplest form.

1. 18 inches to 4 feet

2. 50 to 65

Write the unit rate.

3. 168 words in 3 minutes

4. $17 for 5 cards

Tell whether each proportion is true or false and prove your answer.

5. \[
\frac{5.5}{7.5} = \frac{5}{7}
\]

6. \[
\frac{3.5}{7} = \frac{9}{18}
\]

Solve each proportion. Show your work.

7. \[
\frac{2.5}{5} = \frac{n}{8}
\]

8. \[
\frac{22}{10} = \frac{y}{5}
\]

Solve each word problem using the six-step proportion method.

9. Travel Rent-a-Car charges $135 to rent a car for 3 days. At this rate, what will it cost to rent a car for 5 days?

10. The ratio of boys to girls in Mr. Johnson’s class is 3:5. If there are 32 students in his class, how many of these are girls?
II. Scale and Similarity

Use the map of Texas to answer the following questions. \( \frac{1}{4} \text{ inch : 10 miles} \)

11. The actual distance from San Antonio to Dallas is 280 miles. How many inches apart are they on the map?

12. Dallas and Houston are 6 inches apart on the map. What is the actual distance between these two cities?

Use the figures below to answer the following questions.

13. Use proportions to solve for \( n \) and \( p \). Box final answer.

\( \triangle ABC \sim \triangle XYZ \)

III. Solve each problem using a percent equation. Round final answers to the nearer tenth.

14. What number is 4.5% of 7800? 
15. What number is \( 12 \frac{1}{2} \% \) of 30?

16. What percent of 72 is 34? 
17. 116 is 5.5% of what number?
IV. Find each percent of change. Label your answer as increase or decrease. Round your final answer to the nearer tenth of a percent.

18. 27 to 17
19. $225 to $145
20. 89 to 120

V. Markup & Discount
Find the missing amounts. Round your answers to the nearest cent and remember your labels! Show all steps.

21. cost: $15.50
   markup rate: 45%
   markup amount ________________
   selling price ________________

22. selling price: $20.75
   discount: 30%
   discount amount _____________
   sale price _________________

23. cost: $25.70
   markup rate: 120%
   markup amount ________________
   selling price ________________

24. selling price: $3200
   discount: $33 \frac{1}{3} \%
   discount amount ______________
   sale price _________________
25. selling price: $230.00
   tax rate: 5%
   tax amount:__________________
   total:______________________

26. restaurant bill: $38.50
   tip rate: 15%
   tip amount:__________________
   total:______________________

VI. Simple Interest
Find the interest and final balance for each account. Show all work. Label the answer.

27. $1500 at 4% simple interest for 5 years.
   _______________interest
   _______________final balance

28. $895 at 3.5% simple interest for 4½ years.
   _______________interest
   _______________final balance

29. $230 at 5% simple interest for 6 years and 3 months.
   _______________interest
   _______________final balance