



Jakarta International
School
7th Grade

Name: _____

Date: _____

Practice Test - Blue

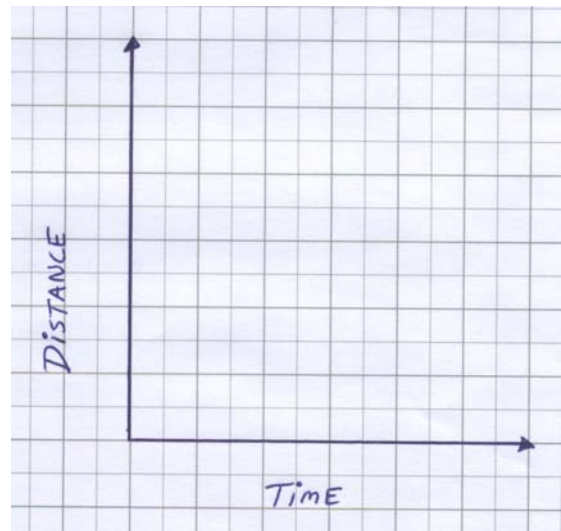
Ratios, Proportions, Percents
and Probability

Score: ○ $\overline{56}$ ○

Clearly show required work. Check Carefully! (2 points per answer)

1. When a car travels at a constant speed, the distance it travels is directly proportional to the time it has been travelling.

- A. A car drives 300 km in 6 hours. Graph the relationship between the distance and time that the car has travelled.



- B. Slope is a term used to describe the graph of a line. It is a ratio between 2 quantities that can be read from a graph. What are these 2 quantities?

- C. What is the slope of the line you graphed?

- D. What is the car's unit rate?

- E. Explain the relationship between slope and unit rate, using this situation as an example that demonstrates your understanding.

2. **AMAZING INSECTS** - "Fleas can jump over 80 times their own height, the equivalent of a 6 foot tall human jumping over a building 480 feet (more than 1 and a half football fields) high!" And, "Fleas can pull 160,000 times their own weight!"
(From the flying turtle - Science and Technology Exploration Website)

If a human were as strong as a flea, how heavy would he/she need to be in order to pull 10 million kilograms?

3. **WIN THE LOTTERY** - The eldest of the Johnson children borrowed some money from each of her younger siblings to buy a lottery ticket. The children agree that they would split the winnings according to the ratio of their ages if they ever won. Last week, they won \$320,000! If the children's ages are in the ratio 2:3:4:7, how much money will the youngest child receive?

4. **MONEY, MONEY, MONEY** - While driving down to Java coast, you see a sign that says gasoline costs 74,500 Indonesian Rupiah (IDR) per liter (L). The current exchange rate is 11,500 IDR to a United States dollar. How much does the gasoline cost in dollars per gallon? (1 gal is about 3.784 L) . Round to the nearest cent.

5. **REAL ESTATE** - A real estate agent sold a house for \$84,000. The agent's commission was \$5040.

a. What was the commission to selling-price ratio? Express the answer both as a ratio of two integers in lowest terms and as a percent

b. What would the commission be for a house that sells for \$278,000 if the commission to selling-price ratio is the same?

6. **PEANUT CONTEST** - A large jar contains 8400 nuts. You will receive a prize if you guess closest to the number of peanuts in the jar. From a small sample, you find that the ratio of peanuts to other nuts is about 3:4. Based on this information, about how many peanuts are in the jar?

7. Five men were to share the treasure with Long John Silver. If the treasure were split in the following ratio of 2:5:7:10:20:50 and the least amount any of the six pirates received was 14,000 pounds of gold, what is the total weight of the treasure?

8. Solve the proportion for x. $\frac{x-6}{4} = \frac{x-9}{2}$

9. What makes a good random sample? Use the following situations to support your answer.

Situation A: You want to know how often teens rent videos. You plan to survey teens going into the local video rental store.

Situation B: You want to know the most popular breakfast cereal. You plan to survey every 5th person entering a grocery store.

10. **PHOTOGRAPHY** - A picture is enlarged by a scale factor of $\frac{5}{4}$ and then enlarged again by the same factor.

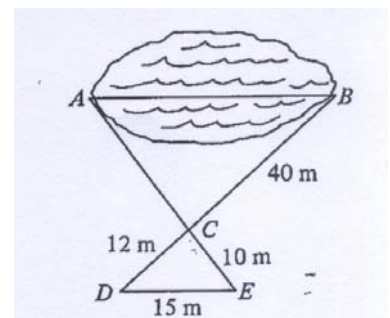
a. If the original picture was 2.5 inches by 4 inches, how large was it after both enlargements?

b. By what scale factor was the original picture enlarged?

11. Write **A** if the statement is always true, **S** if the statement is sometimes true, and **N** if the statement is never true. **Then**, draw figures to support your answer.

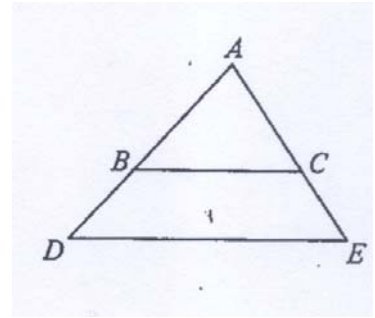
Two rectangles are similar. _____ Drawing:

12. In the figure, $\angle A \cong \angle E$. Use the given measurements to find the length of the pond.



13. In the following exercise, $\triangle ABC \sim \triangle ADE$

$DE = 10$, $BC = 8$, $AC = 4$. Find AE



14. When flipping a coin three times in a row, what is the probability of flipping two heads and one tail if order does not matter? Show all possibilities.

15. Nathan will roll two six-sided dice. What is the probability that he will roll a number less than three on the first die and a number greater than three on the second die? Express your answer as a common fraction.

16. A bowl contains 8 marbles (one red, two white, 3 blue, and 2 green). If you pick two marbles from the bowl at random and without replacement, what is the probability that you will get one white marble and one blue marble? Express your answer as a common fraction.

17. Ralph and Waldo each simultaneously hold out some fingers on one hand. Ralph always holds out a prime number of fingers; Waldo always holds out an odd number. What is the probability that the sum of the number of fingers they hold out is even? Express your answer as common fraction.

18. Convert this percent to a fraction: $6\frac{3}{4}\%$

19. $1\frac{1}{2}$ is what percent of $\frac{10}{7}$?

20. A shop owner bought 600 shirts. He bought 30% of them at \$2.50 each, $\frac{1}{2}\%$ of them at \$50 each, $\frac{1}{8}$ of them at \$40 each, and 50% of the remainder at \$10 each. If he paid a total of \$690 for the rest of the shirt, how much did he pay for all the shirts?

21. The usual selling price of a car was \$18,200. It was later sold at a 20% discount and a 4% profit was made. Find the loss that would have been made if it had been sold at a 25% discount.

22. Austin borrowed \$16,990 from the bank, which charges 9.75% interest annually. If he plans to pay back the loan plus interest at the end of 14 months, how much will he have to pay?