

SAMPLE PAGES

from

Passing the Georgia High School Graduation Test in Mathematics

by Jane Hereford

CPC

CONTEMPORARY PUBLISHING COMPANY OF RALEIGH, INC.

6001-101 Chapel Hill Road, Raleigh, NC 27607 • (919) 851-8221

TABLE OF CONTENTS

| | |
|----|---|
| | Diagnostic Test |
| | Evaluation Chart |
| 1 | Whole Numbers |
| 2 | Decimals |
| 3 | Fractions |
| 4 | Percents |
| 5 | Order of Operations |
| 6 | Estimating |
| 7 | Number Lines |
| 8 | Properties |
| 9 | Simple Equations |
| 10 | Two-step Equations |
| 11 | Equations—Expressions and Word Problems |
| 12 | Ratios and Proportions |
| 13 | Exponents |
| 14 | Measurements |
| 15 | Geometry |
| 16 | Polygons |
| 17 | Triangle Congruency |
| 18 | Area |
| 19 | Perimeter |
| 20 | Surface Area |
| 21 | Volume |
| 22 | Using Other Formulas |
| 23 | Coordinate Planes, Translations, Reflections, and Rotations |
| 24 | Linear Equations |
| 25 | Mean, Median, Mode and Range |
| 26 | Probability |
| 27 | Tables, Graphs, Maps and Thermometers |
| 28 | Slope and Intercepts |
| | Practice Test 1 |
| | Practice Test 2 |

14 || CHAPTER

MEASUREMENTS

➤ *Standard Measurements*

LENGTH:

1 foot = 12 inches

1 yard = 3 feet or 36 inches

1 mile = 1,760 yards or 5,280 feet

WEIGHT:

1 pound = 16 ounces

1 ton = 2,000 pounds

LIQUID MEASURES:

1 pint = 16 ounces or 2 cups

1 quart = 2 pints or 32 ounces

1 gallon = 4 quarts or 8 pints or 128 ounces

1 cup = 8 ounces

TIME:

1 minute = 60 seconds

1 hour = 60 minutes or 3,600 seconds

1 day = 24 hours

1 week = 7 days

1 year = 12 months or 52 weeks or 365 days

EXAMPLES

How many cups in 128 ounces?

1 cup = 8 ounces

$128 \div 8 = 16$ cups

3 hours 55 minutes

+ 4 hours 18 minutes

7 hours 73 minutes = 8 hours 13 minutes

$$\begin{array}{r} \frac{1 \text{ hour}}{60} \overline{)73} \\ \underline{60} \\ 13 \text{ minutes} \end{array}$$

1 hour = 60 minutes

Change 73 minutes to hours and minutes.

$7 + 1 = 8$ hours 13 minutes

PRACTICE

Solve each measurement problem.

1. 25 minutes = _____ seconds
2. 12 hours 45 minutes = _____ minutes
3. 4 years = _____ days
4. 4 days = _____ hours
5. 3 weeks = _____ days
6. 9 pints = _____ ounces
7. 8 quarts = _____ pints
8. 6 gallons 2 pints = _____ pints
9. 3 quarts = _____ cups
10. 700 ounces = _____ quarts
11. 10 pounds = _____ ounces
12. 15 tons 1,300 pounds = _____ pounds
13. 368 ounces = _____ pounds
14. 16,000 pounds = _____ tons
15.
$$\begin{array}{r} 5 \text{ pounds } 12 \text{ ounces} \\ + 8 \text{ pounds } 11 \text{ ounces} \\ \hline \end{array}$$
16. 8 feet = _____ inches
17. 9 yards = _____ feet
18.
$$\begin{array}{r} 6 \text{ yards } 26 \text{ inches} \\ + 3 \text{ yards } 30 \text{ inches} \\ \hline \end{array}$$
19. 8 miles = _____ yards
20.
$$\begin{array}{r} 18 \text{ hours } 29 \text{ minutes} \\ + 2 \text{ hours } 31 \text{ minutes} \\ \hline \end{array}$$

Review

- A jar of jam weighs 48 ounces. How many pounds is this?
 - 4.8 pounds
 - 2 pounds
 - 3 pounds
 - 2.4 pounds
- Marceline studied for 2 hours, Hazel for 110 minutes, Leda for 65 minutes and Lee for 83 minutes. Who studied longest?
 - Lee
 - Leda
 - Hazel
 - Marceline
- 16 feet is how many yards?
 - $5\frac{1}{3}$ yards
 - 5 yards
 - $3\frac{1}{3}$ yards
 - $3\frac{1}{5}$ yards
- How many cups are in 3 quarts?
 - 6 cups
 - 12 cups
 - 3 cups
 - 24 cups
- There are 30 members in the drama club. If each member will drink one cup of soda, how many gallons of soda are needed?
 - 2 gallons
 - 1 gallon
 - 3 gallons
 - 10 gallons
- Sarah needs 95 inches of ribbon to finish the Easter decorations. How many yards of ribbon will she need to buy?
 - 4 yards
 - 5 yards
 - 2 yards
 - 3 yards
- It took Mike 1 hour and 15 minutes to mow one lawn. How long did it take him to mow 4 lawns?
 - 4 hours 15 minutes
 - 5 hours
 - $3\frac{1}{2}$ hours
 - 6 hours 10 minutes
- Kristen read 45 minutes on Monday, 30 minutes on Tuesday, 1 hour on Wednesday and 37 minutes on Thursday. What was her total time reading?
 - 2 hours 52 minutes
 - 1 hour 72 minutes
 - 17 hours 2 minutes
 - 3 hours
- Each meat loaf contains 1.5 pounds of hamburger. How many ounces are needed for 3?
 - 24 ounces
 - 89 ounces
 - 72 ounces
 - 24.5 ounces
- A farm truck weighs 4 tons. How many pounds does the truck weigh?
 - 8 pounds
 - 80 pounds
 - 800 pounds
 - 8,000 pounds

11. How many quarts of orange juice are needed for 16 people if each person receives 1 cup?
- 4 quarts
 - 2 quarts
 - 6 quarts
 - 8 quarts
12. Jerry is paid every two weeks. How many paychecks does he receive in a year?
- 52
 - 104
 - 26
 - 12
13. Greg will be in Atlantic City for 5 weeks. How many days will he be there?
- 20
 - 52
 - 25
 - 35
14. What part of a day is 6 hours?
- $\frac{1}{6}$
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{1}{10}$
15. Jennifer weighs 125 pounds. How many ounces does she weigh?
- 2,000 ounces
 - 1,000 ounces
 - 250 ounces
 - 7,500 ounces

➤ *Passage of Time*

EXAMPLES

If Jackie got to work at 8:00 A.M. and worked until 11:00 A.M., how many hours was she at her office?

$$\begin{array}{r} 11:00 \text{ A.M.} \\ -8:00 \text{ A.M.} \\ \hline 3:00 = 3 \text{ hours} \end{array}$$

Since both times are A.M., subtract the smallest time from the largest time to get the hours at the office.

If Sandra was at her office from 7:30 A.M. until 5:00 P.M., how many hours was she at her office?

$$\begin{array}{r} 5:00 + 12 \text{ hours} = 17:00 \\ 16 \quad 60 \\ \cancel{17:00} \\ -7:30 \\ \hline 9:30 = 9 \text{ hours and } 30 \text{ minutes} \end{array}$$

Since one time is A.M., and one time is P.M. (12:00 – 11:59), you must add 12 hours to the P.M. time before you subtract.

PRACTICE

Find the number of hours worked each day by Janet.

| | Time In | Time Out | Hours Worked |
|----------------|------------|------------|--------------|
| 1. January 2 | 8:00 A.M. | 11:30 A.M. | _____ |
| 2. January 3 | 8:30 A.M. | 5:30 P.M. | _____ |
| 3. January 4 | 9:00 A.M. | 5:00 P.M. | _____ |
| 4. January 5 | 8:15 A.M. | 5:15 P.M. | _____ |
| 5. January 6 | 8:45 A.M. | 11:30 A.M. | _____ |
| 6. January 9 | 8:00 A.M. | 4:30 P.M. | _____ |
| 7. January 10 | 1:00 P.M. | 6:15 P.M. | _____ |
| 8. January 11 | 12:15 P.M. | 9:00 P.M. | _____ |
| 9. January 12 | 7:10 A.M. | 12:10 P.M. | _____ |
| 10. January 13 | 10:30 A.M. | 4:00 P.M. | _____ |
| 11. January 16 | 9:00 A.M. | 1:00 P.M. | _____ |
| 12. January 17 | 7:30 A.M. | 2:15 P.M. | _____ |
| 13. January 18 | 8:00 A.M. | 1:00 P.M. | _____ |
| 14. January 19 | 10:00 A.M. | 2:00 P.M. | _____ |
| 15. January 20 | 9:20 A.M. | 12:20 P.M. | _____ |

➤ Review

Answer each of the “time” questions.

- Margaret started her workday at 8:00 A.M. If she left work at 4:10 P.M., how many hours was she at her office?
 - 8 hours, 10 minutes
 - 4 hours, 10 minutes
 - 4 hours, 50 minutes
 - 3 hours, 50 minutes
- Jason works from 7:00 A.M. until 12:00 noon every Monday. How many hours does he work on Monday?
 - 17 hours
 - 19 hours
 - 6 hours
 - 5 hours
- Patrick works from 7:00 A.M. to 1 P.M. 5 days a week. How many hours does he work in 5 days?
 - 13 hours
 - 40 hours
 - 30 hours
 - 6 hours
- Tyler worked on his essay from 4 P.M. until 9 P.M. How many hours did he spend working on his essay?
 - 13 hours
 - 17 hours
 - 6 hours
 - 5 hours
- Jerry left his job at 4:30 P.M. If he arrived at his office at 8:00 A.M., how many hours did he work?
 - 9 hours
 - 8 hours, 30 minutes
 - 4 hours, 30 minutes
 - 3 hours, 30 minutes

Use the chart to answer questions #6–12.

| <u>DAY</u> | <u>TIME IN</u> | <u>TIME OUT</u> |
|------------|----------------|-----------------|
| Monday | 7:00 A.M. | 5:15 P.M. |
| Tuesday | 8:30 A.M. | 12:00 noon |
| Wednesday | 9:00 A.M. | 11:30 A.M. |
| Thursday | 7:00 P.M. | 11:30 P.M. |
| Friday | 3:00 P.M. | 5:10 P.M. |
| Saturday | 1:00 P.M. | 10:15 P.M. |
| Sunday | 10:00 A.M. | 4:30 P.M. |

- How many hours were worked on Monday?
 - 12 hours, 15 minutes
 - 10 hours, 15 minutes
 - 2 hours, 15 minutes
 - 12 hours, 45 minutes
- How many hours were worked on Tuesday?
 - 20 hours, 30 minutes
 - 4 hours, 30 minutes
 - 3 hours, 30 minutes
 - 5 hours, 30 minutes
- How many hours were worked on Wednesday?
 - 13 hours, 30 minutes
 - 3 hours
 - 20 hours, 30 minutes
 - 2 hours, 30 minutes
- How many hours were worked on Thursday?
 - 18 hours, 30 minutes
 - 4 hours, 30 minutes
 - 4 hours,
 - 3 hours, 30 minutes
- How many hours were worked on Friday?
 - 2 hours, 10 minutes
 - 7 hours
 - 3 hours, 10 minutes
 - 14 hours

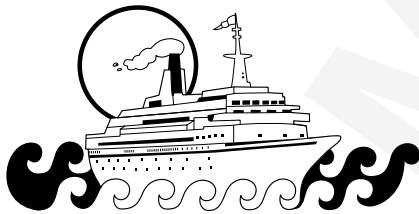
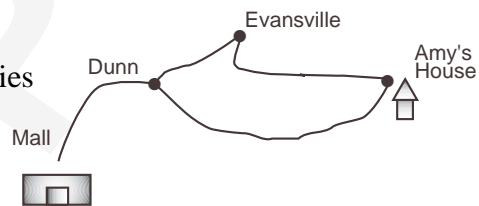
11. How many more hours were worked on Saturday than on Sunday?
- 3 hours, 15 minutes
 - 15 hours, 45 minutes
 - 2 hours, 15 minutes
 - 2 hours, 45 minutes
12. On which day were more hours worked?
- Monday
 - Wednesday
 - Saturday
 - Friday
13. Which schedule would Rita have to work to log in 3 hours time?
- 7:00 A.M. to 10:00 A.M.
 - 7:00 A.M. to 10:00 P.M.
 - 11:00 A.M. to 12 noon
 - 9:00 A.M. to 11:00 A.M.
14.

| <u>TIME IN</u> | <u>TIME OUT</u> | <u>HOURS WORKED</u> |
|----------------|-----------------|---------------------|
| 8:45 A.M. | 10:30 P.M. | <u> ?</u> |
- 2 hours, 15 minutes
 - 13 hours, 45 minutes
 - 2 hours, 25 minutes
 - 18 hours, 30 minutes

➤ Metric Measurements

LENGTHS

kilometer - used to measure distance between cities

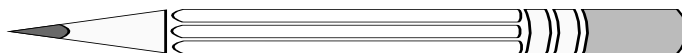


meter - used to measure the length of a cruise ship

centimeter - used to measure the width of a shoe

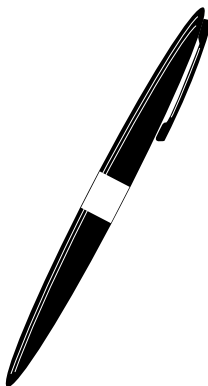
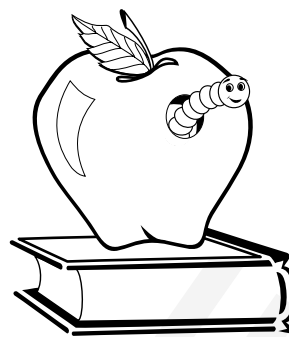


millimeter - used to measure the thickness of a pencil lead



MASS

kilogram - used to measure weight (mass) of a book



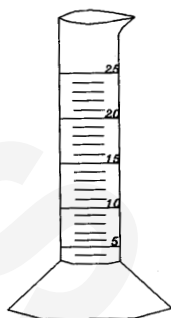
gram - used to measure weight (mass) of a pen

milligram - used to measure weight (mass) of a leaf



CAPACITY

liter - used to measure the liquid in a tank of gas



milliliter - used to measure the liquid in chemistry equipment

PRACTICE

Choose kilometer, meter, centimeter or millimeter for each of the following.

1. To measure your height, use _____.
2. To measure the length of your fingernail, use _____.
3. To measure the distance from Atlanta, GA to Athens, GA, use _____.
4. To measure the width of your shoe, use _____.

Choose kilogram, gram or milligram for each of the following.

5. To measure the mass of a baseball mitt, use _____.
6. To measure a pinch of pepper, use _____.
7. To measure a pencil eraser, use _____.

Choose liter or milliliter for each of the following.

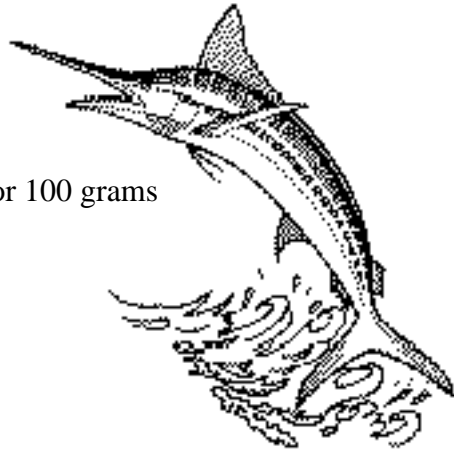
8. To measure the amount of water in a swimming pool, use _____.
9. To measure the amount of milk in an eyedropper, use _____.

Which answer would be the appropriate measurement for each picture?

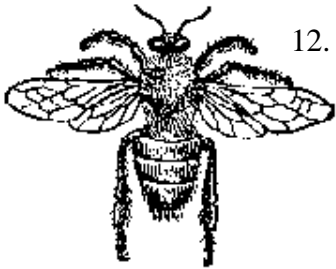
10. 30 centimeters or 30 meters



11. 100 kilograms or 100 grams



12. 5 grams or 5 milligrams

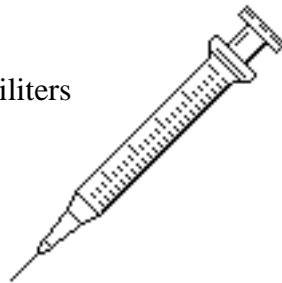


13. 3 kilometers or 3 meters



14. 7 centimeters or 7 kilometers

15. 3 liters or 3 milliliters



➤ Review

1. Which would be used to measure the coffee in this cup?



- a. milliliters
b. meters
c. liters
d. centimeters
2. Which would be used to measure the width of this butterfly's wing?



- a. meters
b. grams
c. centimeters
d. milligrams
3. Which would be used to measure the weight of the bull?



- a. meters
b. grams
c. centimeters
d. kilograms

4. Which unit is most appropriate to use when measuring the width of a highway?
- a. millimeter
b. centimeter
c. decimeter
d. meter
5. Marjorie's driveway is 30 meters long rounded to the nearest ten. Which of the following could be the length of her driveway before rounding?
- a. 23 meters
b. 21 meters
c. 27 meters
d. 24 meters
6. Which of the following would be measured in kilograms?
- a. pencil
b. piece of paper (10cm × 12cm)
c. pin
d. brick
7. Which of the following would be the appropriate unit to use for measuring a glass of grapefruit juice?
- a. centimeter
b. gram
c. liter
d. milliliter
8. An approximate mass of a leaf would be _____ .
- a. 40 milligrams
b. 40 grams
c. 40 kilograms
d. 40 liters

9. Which would be used to measure the liquid in this pitcher?



- a. gram
 - b. milligram
 - c. liter
 - d. centimeter
10. Which would be used to measure the length of this snowflake?

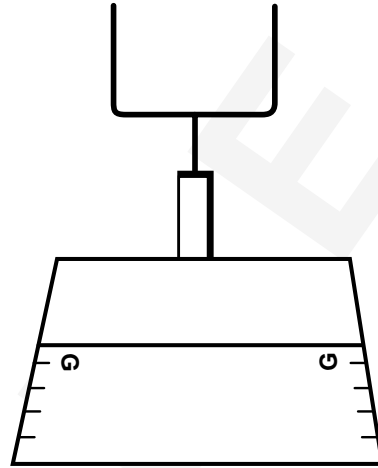


- a. centimeter
 - b. gram
 - c. milligram
 - d. millimeter
11. Which would be used to weigh this ant?



- a. gram
- b. milligram
- c. centimeter
- d. millimeter

12. Which would be used to measure the length of this football field?

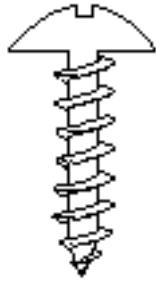


- a. meter
 - b. kilometer
 - c. gram
 - d. kilogram
13. Which metric unit would be used to measure the thickness of a hair?
- a. meter
 - b. millimeter
 - c. centimeter
 - d. milligram
14. The approximate weight of a pair of shoes would be _____.
- a. 1 gram
 - b. 1 milligram
 - c. 1 kilogram
 - d. 1 meter
15. The approximate width of a little finger is _____.
- a. 1 meter
 - b. 1 kilometer
 - c. 1 gram
 - d. 1 centimeter

16. Which of the following is not a metric unit of measurement?

- a. gram
- b. quart
- c. liter
- d. centimeter

17. Which would be used to measure this screw?



- a. kilogram
- b. centimeter
- c. millimeter
- d. gram

18. To calculate the mass of a car, use _____.

- a. grams
- b. kilograms
- c. milligrams
- d. milliliters

19. _____ would be used to calculate the capacity of a pot of chili.

- a. Milliliters
- b. Grams
- c. Liters
- d. Kilograms

20. The best estimate for a tank of gas would be _____.

- a. 51 kilograms
- b. 51 grams
- c. 51 liters
- d. 51 milliliters