Grade 7 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5,280 feet
1 mile = 1,760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1,000 cubic centimeters

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$

Session 1

TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before making your choice.
- You have been provided with mathematics tools (a ruler, a protractor, and a calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.

1 Clara goes miniature golfing. She pays $7.50 for an admission ticket and $6.25 for each round she golfs. The total amount Clara pays for admission and the number of rounds she golfs is $26.25. Which equation can be used to determine the number of rounds, x, that Clara golfs?

A $6.25x + 7.50 = 26.25$

B $6.25x - 7.50 = 26.25$

C $7.50x + 6.25 = 26.25$

D $7.50x - 6.25 = 26.25$

2 What is the exact decimal equivalent of $\frac{7}{12}$?

A 0.583

B $0.58\overline{3}$

C 1.714

D $1.71\overline{4}$

3 Joseph's lunch at a restaurant costs $13.00, without tax. He leaves the waiter a tip of 17% of the cost of the lunch, without tax. What is the total cost of the lunch, including the tip, without tax?

A $2.21

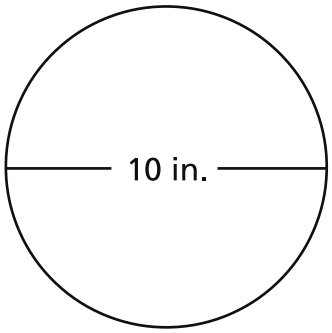
B $10.79

C $13.17

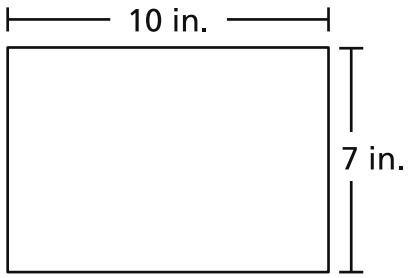
D $15.21

4 Jordan is baking brownies and will choose to use either a round or a rectangular pan. The dimensions of the bottom of each pan are shown below.

BOTTOM OF ROUND PAN



BOTTOM OF RECTANGULAR PAN



Which statement correctly describes how the area of the bottom of the round pan compares to the area of the bottom of the rectangular pan?

A The area of the bottom of the round pan is greater than the area of the bottom of the rectangular pan by about 8.5 square inches.

B The area of the bottom of the round pan is greater than the area of the bottom of the rectangular pan by about 244.2 square inches.

C The area of the bottom of the round pan is less than the area of the bottom of the rectangular pan by about 7.2 square inches.

D The area of the bottom of the round pan is less than the area of the bottom of the rectangular pan by about 38.6 square inches.

5 On average, Shawnte drinks $\frac{1}{2}$ of a 6-ounce glass of water in $\frac{2}{3}$ hour. How much water does she drink in an hour?

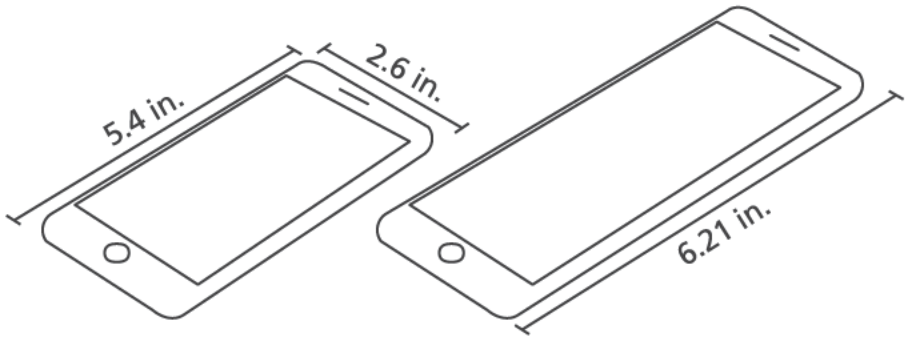
A 0.75 ounce

B 2 ounces

C 4.5 ounces

D 9 ounces

9 The diagram shows the length and width of a cell phone, and the length of a larger version of the same brand of cell phone.



The lengths and widths of the two cell phones are proportional. What is the width, in inches, of the larger version of the cell phone?

A 1.15

B 2.26

C 2.99

D 3.41

10 From 12:00 midnight to 6:00 a.m., the temperature decreased by 12°C. If the original temperature was 12°C, which expression can be used to represent this situation?

A $12 - 12$

B $12 + 12$

C $12 - (-12)$

D $-12 + (-12)$

GO ON

13 The ratio of boys to girls in Mr. Johnson's after-school club is the same as the ratio of boys to girls in Ms. Greene's after-school club. There are 4 boys and 12 girls in Mr. Johnson's club. There are 6 boys in Ms. Greene's club. How many girls are in Ms. Greene's club?

A 2

B 12

C 14

D 18

14 The regular price of an item at a store is p dollars. The item is on sale for 20% off the regular price. Some of the expressions shown below represent the sale price, in dollars, of the item.

Expression A: $0.2p$

Expression B: $0.8p$

Expression C: $1 - 0.2p$

Expression D: $p - 0.2p$

Expression E: $p - 0.8p$

Which two expressions each represent the sale price of the item?

A Expression A and Expression E

B Expression B and Expression C

C Expression B and Expression D

D Expression C and Expression D

GO ON

15 Last week, the price of apples at a grocery store was $\$1.60$ per pound. This week, apples at the same grocery store are on sale at a 10% discount. What is the total price of $4\frac{1}{2}$ pounds of apples this week at the grocery store?

A $\$4.77$

B $\$6.48$

C $\$6.75$

D $\$6.93$

16 An object travels along a horizontal straight path at a constant rate. The object travels $\frac{1}{20}$ of the length of the path in $\frac{3}{4}$ second. At that rate, how many seconds does it take the object to travel the entire length of the path?

A 15

B $15\frac{3}{4}$

C 20

D $20\frac{3}{4}$

19 Which table shows a proportional relationship between x and y?

A

x	y
3	4
6	10
9	16
12	22
15	28

C

x	y
4	2
8	4
12	8
16	14
20	20

B

x	y
12	6
14	12
16	18
18	24
20	30

D

x	y
5	1
10	2
15	3
20	4
25	5

20 Which expression is equivalent to $7a - 8 - 12a + 4$?

A $-9a$

B $31a$

C $-5a - 4$

D $19a + 12$

27 Danielle constructs a scale model of a building with a rectangular base. Her model is 2 inches in length and 1 inch in width. The scale on the model is 1 inch = 47 feet. What is the actual area, in square feet, of the base of the building?

A 141

B 282

C 2,209

D 4,418

28 What value will make the equation true?

$$-2.1 - \underline{\quad ? \quad} = -1\frac{1}{2}$$

A 3.6

B 0.6

C -0.6

D -3.6

29 Manny goes bowling.

- He has $\$25.00$ to spend.
- He spends $\$4.25$ to rent shoes.
- He spends $\$2.50$ for each game he bowls.

Which inequality can Manny use to determine x, the greatest number of games he can bowl?

A $2.5 + 4.25x \geq 25$

B $4.25 + 2.5x \geq 25$

C $2.5 + 4.25x \leq 25$

D $4.25 + 2.5x \leq 25$

30 A middle school principal wants to change the lunch menu at the school. The principal surveys the students to determine how the students would feel about the changes. Which survey method will produce the **best** representative sample?

A survey every fifth student who rides in a car to school

B survey 3 randomly selected students from every homeroom

C survey every tenth seventh-grade student during lunch

D survey 5 randomly selected students from every art, drama, and music class

31 Kerry has a bag containing white and yellow marbles. Kerry randomly selects one marble from the bag, records the result, and returns the marble to the bag. The results of the first 65 selections are shown below.

- A white marble was selected 41 times.
- A yellow marble was selected 24 times.

Based on these results, what is the probability that the next marble Kerry selects, rounded to the nearest percent, will be white?

A 41%

B 50%

C 59%

D 63%

32 Which situation results in a final value of zero?

A the overall change in temperature when the temperature goes from $-10^{\circ}\mathrm{F}$ to $10^{\circ}\mathrm{F}$

B the total profit made when a person buys an item for $\$2.25$ and then sells the item for $\$2.25$

C the overall change in altitude of a hot air balloon after rising 21 kilometers from sea level

D the total distance a person travels when he bikes 3.1 miles to school and then bikes 3.1 miles back home