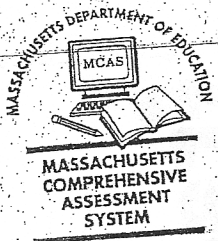


algebra measurements
radius
ratio
volume
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fractions
equations
scale
sequences
percents
diameter
expressions
polygons
circles
proportion
area
integers
perimeter
value
absolute
decimals
rate
practice

Name	_____
Date	_____
Period	_____



Massachusetts Comprehensive Assessment System Grade 7 Mathematics Reference Sheet

PERIMETER FORMULAS

square $P = 4s$

rectangle $P = 2b + 2h$
OR

$P = 2l + 2w$

triangle $P = a + b + c$

AREA FORMULAS

square $A = s^2$

rectangle $A = bh$
OR

$A = lw$

parallelogram $A = bh$

triangle $A = \frac{1}{2}bh$

trapezoid $A = \frac{1}{2}h(b_1 + b_2)$

circle $A = \pi r^2$

TOTAL SURFACE AREA FORMULAS

rectangular prism .. $SA = 2(lw) + 2(hw) + 2(lh)$

cylinder $SA = 2\pi r^2 + 2\pi rh$

VOLUME FORMULAS

rectangular prism $V = lwh$
OR

$V = Bh$
($B =$ area of a base)

cube $V = s^3$
($s =$ length of an edge)

cylinder $V = \pi r^2 h$

CIRCLE FORMULAS

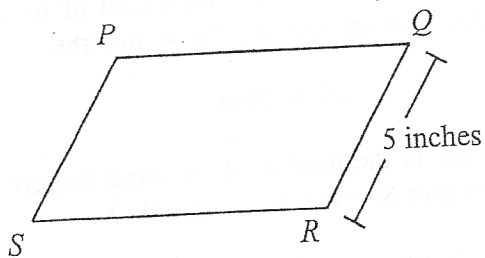
$C = 2\pi r$

OR

$C = \pi d$

$A = \pi r^2$

1) The perimeter of the parallelogram shown below is 24 inches.



Based on the given dimensions of the parallelogram, what is the length of side SR ?

- A. 4.8 inches
- B. 7 inches
- C. 9 inches
- D. 9.5 inches

2) Which of the following estimates is closest to the value of the expression below?

$$161.18 \div 7.8$$

- A. 0.02
- B. 0.2
- C. 2
- D. 20

3) Which of the following fractions is greater than $\frac{3}{4}$ but less than $\frac{4}{5}$?

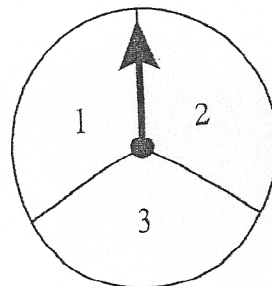
- A. $\frac{37}{50}$
- B. $\frac{19}{25}$
- C. $\frac{17}{20}$
- D. $\frac{7}{10}$

4) What is the value of the expression below?

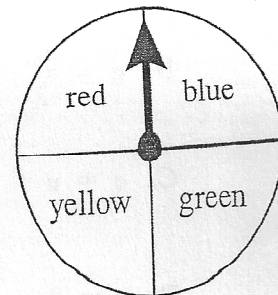
$$6 + 4^3 \div 2$$

- A. 12
- B. 15
- C. 35
- D. 38

5) Haley has one spinner that is divided into three congruent sections and one spinner that is divided into four congruent sections, as shown below.



Spinner L



Spinner M

Haley will spin the arrow on each spinner one time. All the possible combinations that can occur are shown in the list below.

- | | | |
|-----------|-----------|-----------|
| 1, red | 2, red | 3, red |
| 1, blue | 2, blue | 3, blue |
| 1, green | 2, green | 3, green |
| 1, yellow | 2, yellow | 3, yellow |

What is the probability that the arrow on Spinner L will stop on a section with an odd number and the arrow on Spinner M will stop on the red section?

- A. $\frac{1}{6}$
- B. $\frac{1}{5}$
- C. $\frac{11}{12}$
- D. $\frac{3}{4}$

6)

The table below shows the numbers of vertices and edges for four types of prisms.

Features of Prisms

Type of Prism	Number of Vertices (v)	Number of Edges (e)
Triangular	6	9
Rectangular	8	12
Pentagonal	10	15
Hexagonal	12	18

Which of the following equations could be used to predict e , the number of edges of a prism with v vertices?

A. $e = \frac{2v}{3}$

B. $e = \frac{3v}{2}$

C. $e = v + 3$

D. $e = 2v - 6$

7)

Which of the following statements describes a correct method for solving the equation below?

$$20 + 2w = 50$$

- A. Add 20 to both sides of the equation, and then divide both sides by 2.
- B. Subtract 20 from both sides of the equation, and then divide both sides by 2.
- C. Divide both sides of the equation by 2, and then add 20 to both sides.
- D. Divide both sides of the equation by 2, and then subtract 20 from both sides.

8)

The cost of using Expert Internet Service is a one-time fee of \$25 plus a monthly fee of \$10. The expression below represents the total cost of using this Internet service for m months.

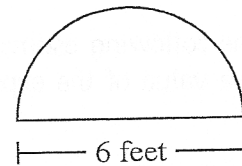
$$25 + 10m$$

What is the total cost of using Expert Internet Service for 8 months?

- A. \$105
- B. \$133
- C. \$250
- D. \$280

9)

The top of an office desk is in the shape of a semicircle, as shown in the figure below.



Based on the dimension given in the figure, which of the following is closest to the area of the top of the office desk? (Use 3.14 for π .)

- A. 9.42 square feet
- B. 14.13 square feet
- C. 18.84 square feet
- D. 56.52 square feet

10)

Carly made 21 out of 83 shots while practicing basketball. Which of the following is closest to the percentage of shots that Carly made?

- A. 20%
- B. 25%
- C. 30%
- D. 40%

- 11)** The table below shows the unit prices of one brand of graham crackers at four different stores. A unit is equal to 1 ounce.

**Unit Prices of
Graham Crackers**

Store	Unit Price
Store A	\$0.215
Store B	\$0.204
Store C	\$0.24
Store D	\$0.2026

Which store sold this brand of graham crackers at the lowest unit price?

- A. Store A
- B. Store B
- C. Store C
- D. Store D

- 12)** The table below shows the one-day changes in the prices of four different companies' stocks on Tuesday.

**Stock Price Changes
on Tuesday**

Company	Amount of Price Change (in \$)
A	-1.32
B	+0.76
C	-0.83
D	+1.25

Which company's stock price changed the most on Tuesday?

- A. Company A
- B. Company B
- C. Company C
- D. Company D

- 13)** Ashley studied one hour less than twice as many hours as Melissa studied. Let m stand for the number of hours Melissa studied. Which of the following expressions represents the number of hours Ashley studied?

- A. $\frac{1}{2}m - 1$
- B. $1 - \frac{1}{2}m$
- C. $1 - 2m$
- D. $2m - 1$

- 14)** A solid three-dimensional figure has the following faces:

- two parallel bases that are congruent triangles
- three lateral faces that are rectangles

Which of the following is a correct name for this figure?

- A. rectangular prism
- B. rectangular pyramid
- C. triangular prism
- D. triangular pyramid

- 15)** Donnie has a spool that contains 18 yards of wire. What is the total number of inches of wire that the spool contains?

- A. 162
- B. 216
- C. 540
- D. 648