MASSACHUSETTS
Department of Elementary and Secondary Education

Massachusetts Comprehensive Assessment System
Grade 8 Mathematics Reference Sheet

CONVERSIONS

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 = 1000 cubic centimeters

1 inch = 2.54 centimeters
1 meter ≈ 39.37 inches
1 mile = 5280 feet
1 mile = 1760 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 = 2000 pounds

AREA (A) 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 . . . . . $A = \pi r^2$

CIRCLE FORMULAS

area. . . . . $A = \pi r^2$

circumference . . . . . $C = 2\pi r$
OR
$C = \pi d$

VOLUME (V) FORMULAS

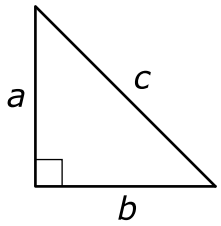
cube . . . . . $V = s^3$
(s = length of an edge)

sphere . . . . . $V = \frac{4}{3}\pi r^3$

cone . . . . . $V = \frac{1}{3}\pi r^2 h$

right circular cylinder . . . . . $V = \pi r^2 h$

right prism . . . . . $V = Bh$

PYTHAGOREAN THEOREM

$a^2 + b^2 = c^2$