

Massachusetts Comprehensive Assessment System Grade 10 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 = Iw

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 (SA) FORMULAS

cube $SA = 6s^2$

right square pyramid $SA = s^2 + 2s\ell$

 $(\ell = \text{slant height})$

right rectangular prism . . SA = 2(Iw) + 2(hw) + 2(Ih)

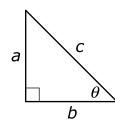
CIRCLE FORMULAS

 $pi \ldots \pi \approx 3.14$

circumference $C = 2\pi r \text{ OR } C = \pi d$

area $A = \pi r^2$

RIGHT TRIANGLES



Pythagorean Theorem

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

Trigonometric Ratios

$$\sin \theta = \frac{a}{c}$$

$$\cos \theta = \frac{b}{c}$$

$$\tan \theta = \frac{a}{b}$$

VOLUME (V) FORMULAS

cube
$$V = s^3$$

($s = \text{length of an edge}$)

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

cylinder
$$V = \pi r^2 h$$

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

pyramid
$$V = \frac{1}{3}Bh$$

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

SPECIAL RIGHT TRIANGLES

