

Oklahoma State Testing Program
10th Grade Mathematics Formula Sheet

UNIT CONVERSIONS

1 foot = 12 inches

1 pound = 16 ounces

1 cup = 8 fluid ounces

1 yard = 3 feet

1 ton = 2000 pounds

1 pint = 2 cups

1 mile = 5280 feet

1 kilogram = 1000 grams

1 quart = 2 pints

1 mile = 1760 yards

1 gallon = 4 quarts

1 meter = 100 centimeters

1 meter = 1000 millimeters

AREA

Rectangle

$$A = lw$$

Circle

$$A = \pi r^2$$

Parallelogram

$$A = bh$$

Trapezoid

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

Triangle

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

Regular Polygon

$$A = \frac{1}{2}ap$$

CIRCUMFERENCE

Circle

$$C = \pi d \quad \text{or} \quad C = 2\pi r$$

VOLUME

Rectangular Prism

$$V = Bh \quad \text{or} \quad V = lwh$$

Right Cylinder

$$V = Bh \quad \text{or} \quad V = \pi r^2 h$$

SURFACE AREA

Rectangular Prism

$$S = 2B + Ph \quad \text{or} \quad S = 2lw + 2lh + 2wh$$

Cylinder

$$S = 2\pi rh + 2\pi r^2$$

LINEAR EQUATIONS

Slope-intercept

$$y = mx + b$$

Slope formula

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Point-slope

$$y - y_1 = m(x - x_1)$$

Direct Variation

$$y = kx$$

Standard Form

$$Ax + By = C$$

OTHER

$$d = rt$$

$$\text{Midpoint Formula } \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$\text{Pythagorean Formula } a^2 + b^2 = c^2$$

$$\text{Distance Formula } \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

SEQUENCES

Arithmetic

$$a_n = a_1 + (n - 1)d$$

Geometric

$$a_n = a_1 r^{n-1}$$

COUNTING PRINCIPLES

$$\text{Permutations } {}_n P_r = P(n, r) = \frac{n!}{(n-r)!}$$

$$\text{Combinations } {}_n C_r = C(n, r) = \binom{n}{r} = \frac{n!}{(n-r)!r!}$$