TCAP Math Reference Sheet—EOC

Districts may print and provide copies of this TCAP Math EOC Reference Sheet during online administration of the EOC math assessments.

Conversions

Distance	1 inch = 2.54 centimeters 1 foot = 12 inches 1 yard = 3 feet 1 mile = 5,280 feet 1 mile = 1,760 yards 1 centimeter = 10 millimeters 1 meter = 100 centimeters 1 kilometer = 1,000 meters 1 meter = 3.28 feet 1 mile = 1.609 kilometers 1 kilometer = 0.62 mile	Volume	1 cup = 8 fluid ounces 1 pint = 2 cups 1 quart = 2 pints 1 gallon = 4 quarts 1 liter = 1,000 milliliters 1 liter = 1,000 cubic centimeters 1 gallon = 3.785 liters 1 liter = 0.264 gallons
Weight/Mass	1 pound = 16 ounces 1 ton = 2,000 pounds 1 gram = 1,000 milligrams 1 pound = 0.454 kilograms 1 kilogram = 2.2 pounds	Time	1 minute = 60 seconds 1 hour = 60 minutes 1 hour = 3,600 seconds

Formulas

Area (A)

Name of Figure	Formula	Definitions of Variables
Parallelogram	$A = bh$	b = base h = height
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$	b_1 = first base b_2 = second base h = height
Triangle	$A = \frac{1}{2}bh$	b = base h = height

Volume (*V*) and Surface Area (*SA*)

Name of Figure	Formula	Definitions of Variables
Cone	$V = \frac{1}{3}\pi r^2 h$ $SA = \pi r^2 + \pi rl$	h = height l = slant height r = radius
Cube	$V = s^3$ $SA = 6s^2$	s = side
Cylinder	$V = \pi r^2 h$ $SA = 2\pi r^2 + 2\pi rh$	h = height r = radius
Rectangular Prism	$SA = 2(lw + hl + hw)$	h = height l = length w = width

Name of Figure	Formula	Definitions of Variables
Pyramid	$V = \frac{1}{3}Bh$ $SA = B + \frac{1}{2}Pl$	B = area of base h = height l = slant height P = perimeter of base
Right Prism	$V = Bh$	B = area of base h = height
Sphere	$V = \frac{4}{3}\pi r^3$ $SA = 4\pi r^2$	r = radius

Formulas, Definitions, and Empirical Rule Diagram

Formula/Definition

Slope: $\dfrac{y_2 - y_1}{x_2 - x_1}$, where $x_1 \neq x_2$

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

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

Law of Sines: $\dfrac{\sin A}{a} = \dfrac{\sin B}{b} = \dfrac{\sin C}{c}$

Law of Cosines: $a^2 = b^2 + c^2 - 2bc\cos(A)$

Area of a Sector of a Circle: $\dfrac{\theta}{360} \cdot \pi r^2$

Addition Rule: $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Conditional Probability: $P(A|B) = \dfrac{P(A \cap B)}{P(B)}$

z-score: $z = \dfrac{x - \text{mean}}{\text{standard deviation}}$

Permutations: $nPr = \dfrac{n!}{(n-r)!}$

Combinations: $nCr = \dfrac{n!}{r!(n-r)!}$

Exponential Growth: $y = a(1+r)^t$

Formula/Definition

Exponential Decay: $y = a(1-r)^t$

Compound Interest: $A = P\left(1 + \dfrac{r}{n}\right)^{nt}$

Continually Compounding Interest: $A = Pe^{rt}$

Arithmetic Sequence: $a_n = a_1 + (n-1)d$

Geometric Sequence: $a_n = a_1(r)^{n-1}$

Empirical Rule Diagram

99.7%
95%
68%

−3 −2 −1 0 1 2 3
Standard Deviations from the Mean