Math Formula and Conversions Sheet

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On the math sections of the ISEE, you will not be provided a reference sheet with formulas or conversions on the test. Most of the complex formulas and conversions that are required to solve a problem will be provided for in the problem on the test, but there are some formulas and conversions that students are expected to already know. This reference sheet is designed to contain the common formulas and conversions that are beneficial to know before going into the test and will not be provided in the test.

Divisibility Rules

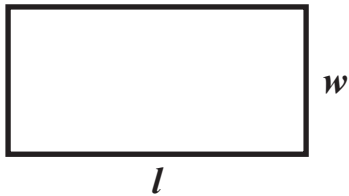| Number	Divisibility Rule	Example
2	The number is even.	496 496 ends in a 6, so it is an even number.
3	The sum of the digits is divisible by 3.	651 6 + 5 + 1 = 12, and 12 is divisible by 3, so 651 is divisible by 3.
5	The number ends in a 5 or 0.	845 845 ends in a 5, so it is divisible by 5.
6	The number is divisible by both 2 and 3.	294 294 is divisible by both 2 and 3, so it is divisible by 6.
9	The sum of the digits is divisible by 9.	729 7 + 2 + 9 = 18, and 18 is divisible by 9, so 729 is divisible by 3.
10	The number ends in a 0.	930 930 ends in a 0, so it is divisible by 10.

Percent Change

$$\frac{\text{Difference of the amounts}}{\text{Original amount}}$$

Mean or Average

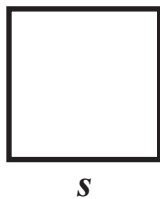$$\frac{\text{Sum of the numbers}}{\text{Number of numbers}}$$

Perimeter of a Rectangle:
$$P = 2l + 2w$$
$$\text{or } P = 2(l + w)$$

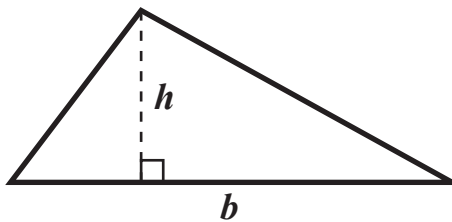Area of a Rectangle:
$$A = l \cdot w$$

Perimeter of a Square:
$$P = 4 \cdot s$$

Area of a Square:
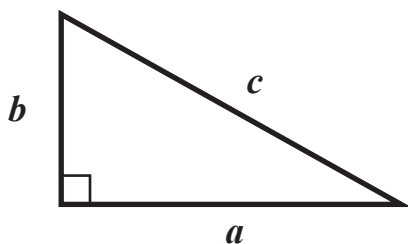$$A = s^2$$

Area of a Triangle:
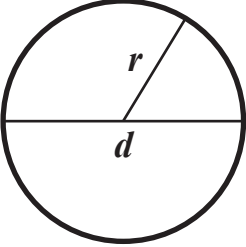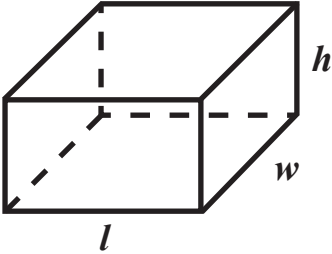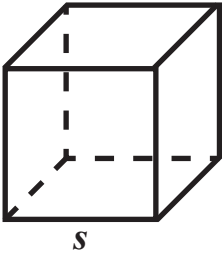$$A = \frac{1}{2} \cdot b \cdot h$$
$$\text{or } A = \frac{b \cdot h}{2}$$

Pythagorean Theorem:
$$a^2 + b^2 = c^2$$

Diameter = 2 • radius

Circumference (or Perimeter) of a Circle:
$$C = d\pi$$
or
$$C = 2r\pi$$

Area of a Circle:
$$A = \pi r^2$$

Volume of a Rectangular Prism:
$$V = l \cdot w \cdot h$$

Surface Area of a Rectangular Prism:
$$SA = 2(l \cdot w) + 2(l \cdot h) + 2(w \cdot h)$$

Volume of a Cube:
$$V = s^3$$

Surface Area of a Cube:
$$SA = 6 \cdot s^2$$

Unit Conversions

Note that most unit conversions will typically be provided in the problem, with the exception of time and metric conversions.

Time	
1 minute = 60 seconds	1 hour = 60 minutes
1 day = 24 hours	1 week = 7 days
1 year = 12 months	

Distance	
1 foot (ft) = 12 inches (in)	1 meter (m) = 100 centimeters (cm)
1 yard (yd) = 3 feet (ft)	1 meter (m) = 1,000 millimeters (mm)
	1 kilometer (km) = 1,000 meters (m)

Weight	
1 pound (lb) = 16 ounces (oz)	1 gram (g) = 1,000 milligrams (mg)
	1 kilogram (kg) = 1,000 grams (g)

Capacity	
1 pint = 2 cups	1 Liter (L) = 1,000 milliliters (mL)
1 quart = 2 pints	
1 gallon = 4 quarts	