

Formula Sheet & Directions for SAILS Tests

- ❖ Students must test with a trained SAILS teacher or a field coordinator.
- ❖ Students cannot be talking to other students.
- ❖ Students cannot use their notes when taking a test.
- ❖ Students cannot receive help of any kind from others or their teacher.
- ❖ Students cannot be on any other websites.
- ❖ Students cannot use their cell phones, smart watch, or personal electronic devices in any way except as part of an approved remote testing procedure.
- ❖ All student work papers must be blank when starting a test, and all papers must be collected by the teacher.

<u>Interest Formulas</u>
<i>Simple Interest: $I = PRT$</i>
<i>Compound Interest: $A = P \left(1 + \frac{r}{n}\right)^{n*t}$</i>
<i>monthly payment = $\frac{\text{principal} + \text{interest}}{\text{total number of payments}}$</i>

<u>Trigonometry</u>	
$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$	
$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$	
$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$	

<u>Geometry</u>		
Rectangle	$A = bh$	
Triangle	$A = \frac{1}{2}bh$	
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	
Circle	$A = \pi r^2$	$C = \pi d$ or $C = 2\pi r$
Rectangular Prism	$V = LWH$	$SA = 2LH + 2WH + 2LW$
Sphere	$V = \frac{4}{3}\pi r^3$	$SA = 4\pi r^2$
Cone	$V = \frac{1}{3}\pi r^2 h$	$SA = \pi r l + \pi r^2$
Cylinder	$V = \pi r^2 h$	$SA = 2\pi r h + 2\pi r^2$

<u>Metric Units of Conversion (m, L, g)</u>	
1 km = 1000 m	1 dm = .1 m
1 hm = 100 m	1 cm = .01 m
1 dam = 10 m	1 mm = .001 m
<u>U.S. (or English) Units of Conversion</u>	
12 in = 1 ft	8 fl oz = 1 c
3 ft = 1 yd	2 c = 1 pt
5280 ft = 1 mi	2 pt = 1 qt
16 oz = 1 lb	4 qt = 1 gal
2000 lb = 1 ton	

Metric Unit Conversions:

kilo	hecto	deca	Base unit	deci	centi	milli
1000	100	10	m or L or g	1/10	1/100	1/1000

Important Equations and Formulas

<i>distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</i>	<i>Percent Increase/Decrease = $\frac{\text{amount of increase or decrease}}{\text{original amount}} * 100$</i>	<i>midpoint = $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$</i>
<i>Point-Slope Form</i> $y - y_1 = m(x - x_1)$	<i>Pythagorean Theorem</i> $a^2 + b^2 = c^2$	<i>Quadratic Formula</i> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$