

APPENDIX D

SCIENCE FORMULA SHEET

Equation	Variables
$v = \frac{d}{t}$	v = velocity
	d = displacement
	t = time interval
$W = F \times d$	W = work
	F = force
	d = displacement
$P = \frac{W}{t}$	P = power
	W = work
	t = time interval
$a = \frac{\Delta v}{\Delta t}$	a = acceleration
	Δv = change in velocity
	Δt = change in time
$F = ma$	F = force
	m = mass
	a = acceleration
$PE = mgh$	PE = gravitational potential energy
	m = mass
	g = acceleration due to gravity
	h = height

APPENDIX D Continued SCIENCE FORMULA SHEET

Equation

$$KE = \frac{1}{2}mv^2$$

Variables

KE = kinetic energy

m = mass

v = velocity

$$v = \lambda f$$

v = wave velocity

λ = wavelength

f = frequency

$$I = \frac{V}{R}$$

I = current

V = potential

R = resistance

$$p = mv$$

p = momentum

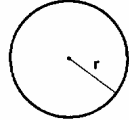
m = mass

v = velocity

APPENDIX D Continued GEOMETRY FORMULA SHEET

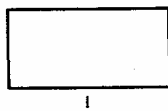
Geometry Reference Sheet 1

Circle



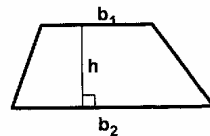
Area = πr^2
Circumference = $2\pi r$

Rectangle



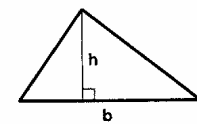
Area = $l \cdot w$
Perimeter = $2l + 2w$

Trapezoid



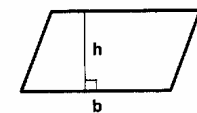
Area = $\frac{1}{2}h(b_1 + b_2)$

Triangle



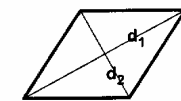
Area = $\frac{1}{2}bh$

Parallelogram



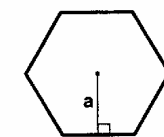
Area = bh

Rhombus or Kite



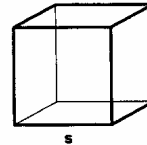
Area = $\frac{1}{2}d_1 \cdot d_2$

Regular Polygon



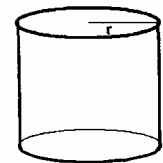
Area = $\frac{1}{2}a \cdot \text{perimeter}$

Cube



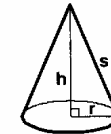
Volume = s^3
Surface area = $6s^2$

Right Circular Cylinder



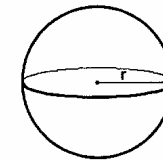
Volume = $\pi r^2 h$
Lateral area = $2\pi r h$
Surface area = $2\pi r h + 2\pi r^2$

Right Circular Cone



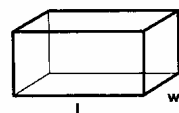
Volume = $\frac{1}{3}\pi r^2 h$
Lateral area = $\pi r s$
Surface area = $\pi r s + \pi r^2$

Sphere



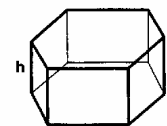
Volume = $\frac{4}{3}\pi r^3$
Surface area = $4\pi r^2$

Rectangular prism



Volume = $l \cdot w \cdot h$
Lateral area = $2(l + w) \cdot h$
Surface area = $2wl + 2lh + 2wh$

Right prism

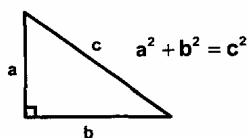


Volume = (base area) $\cdot h$
Surface area =
base area + face areas
Lateral area = sum of face areas

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Geometry Reference Sheet 2

Pythagorean theorem



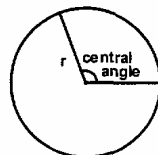
Distance between two points

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Midpoint between two points

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

Sector of circle



$$\text{Arc length} = \frac{\text{circumference} \cdot \text{central angle}}{360^\circ}$$

$$\text{Sector area} = \frac{\text{total area} \cdot \text{central angle}}{360^\circ}$$

