EST II M1 Subject Test

Math Level 1 – Reference sheet

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Equation of a line

Standard form	$Ax + By + C$	• A, B, C are real numbers. • A≥0 A and B are not both zero.
Slope- intercept form	$y = mx + b$	$m = slope, b = y - intercept$
Point -Slope form	$y - y_1 = m(x - x_1)$	
Slope	$m = \frac{y_2 - y_1}{x_2 - x_1}$	$(x_1, y_1)\ and\ (x_2, y_2)$ are 2 points

Quadratics

Standard form of a quadratic equation	$ax^2 + bx + c = 0$	$a, b\ and\ c$ are constants where $a \neq 0$
Quadratic formula	$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

Coordinate Geometry

Midpoint	$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$	$(x_1, y_1)\ and\ (x_2, y_2)$ are 2 points
Distance formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	

Area, Volume, and Surface Area of Polygon and Solids

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Trapezoid	$A = \frac{1}{2}(b_1 + b_2)h$
Regular Polygon	$A = \frac{1}{2}ap$
Prism	$V = Bh$
Regular Prism	$SA = 2B + Ph$
Circular Cylinder	$V = \pi r^2 h$
Right Circular Cylinder	$SA = 2\pi r^2 + 2\pi rh$
Pyramid	$V = \frac{1}{3}Bh$
Right Pyramid	$SA = B + \frac{1}{2}Pl$

$A = Area$

$b = base$

$h = height$

$a = apothom$

$p = Perimeter$

$V = Volume$

$B = Area\ of base$

$SA = Surface\ Area$

Circular cone	$V = \frac{1}{3}\pi r^2 h$	$P = Perimeter\ of\ base$
Right Circular Cone	$SA = \pi r^2 + \pi rl$	$r = radius$
Sphere	$V = \frac{4}{3}\pi r^3$ $SA = 4\pi r^2$	$l = slant\ height$ $\pi = 3.142$

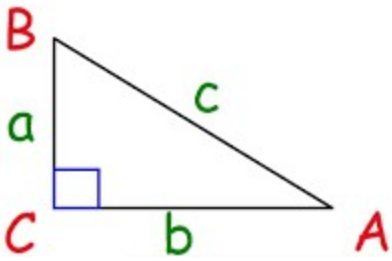
Angles of Polygon

Sum of Degree Measures of the interior Angles of a Polygon	$180(n-2)$	n = number of sides
Degree Measures of an interior Angle of a Regular Polygon	$\frac{180(n-2)}{n}$	

Circles

Equation of a circle	$(x-h)^2 + (y-k)^2 = r^2$	$center\ (h,k)$
Area formula	$A = \pi r^2$	$r = radius$ $A = Area$
Circumference Formula	$C = 2\pi r = \pi d$	$C = circumference$
Area of a sector with central angle θ	$A = \frac{\theta}{360}\pi r^2$	$d = diameter$ $\pi = 3.142$

Right Triangles

Pythagorean Theorem	$a^2 + b^2 = c^2$	
Right Triangle Trigonometry	$\sin A = \frac{a}{c}$ $\cos A = \frac{b}{c}$ $\tan A = \frac{a}{b}$	

Sequences

Arithmetic Sequence	$a_n = a_1 + (n-1)d$	$a_n = n^{th}\ term$ $n = number\ of\ terms$ $d = common\ difference$ $r = common\ ratio$
Geometric Sequence	$a_n = a_1 \times r^{(n-1)}$	

Interest

Simple interest	$I = Prt$	$r = rate$ $t = time$ $I = interest$ $P = Principle$
Compound Interest	$A = P\left(1 + \frac{r}{n}\right)^{nt}$	$A = Amount\ of\ money\ after\ t\ years$ $n = number\ of times\ interest\ is\ compund\ annually$

Miscellaneous

Distance, Rate, Time	$D = rt$	$D = distance$ $r = rate$ $t = time$
Direct Variation (y varies directly with x)	$y = kx$	$k = variation\ constant$
Inverse Variation (y varies indirectly with x)	$y = \frac{k}{x}$	

Key to Symbols

ΔABC ... ... Triangle ABC
$\angle ABC$ ... ... Angle ABC
$m\angle ABC$ ... ... measure of Angle ABC
$\overleftrightarrow{AB}$ ... ... Line AB
$\overline{AB}$ ... ... Line segment AB
AB ... ... length of line segment AB
$Circle\ O$ ... ... Circle with centre O
$\widehat{AB}$ ... ... Arc AB
$\perp$ ... ... is perpendicular to
$\parallel$ ⋯ ... ... is parallel to
$\cong$ ⋯ ... ... is congruent to
$\sim$ ... ... is similar to
$\approx$ ⋯ ... ... is approximately equal