Missouri EOC
Mathematics Reference Sheet

General Equations

$Ax + By = C$

$y = mx + b$

$y - y_1 = m(x - x_1)$

$y = a(x - h)^2 + k$

$y = ax^2 + bx + c$

$y = ab^x$

$y = \log_b x$

$(x - h)^2 + (y - k)^2 = r^2$

General Formulas

$m = \dfrac{y_2 - y_1}{x_2 - x_1}$

${}_nP_r = \dfrac{n!}{(n-r)!}$

${}_nC_r = \dfrac{n!}{(n-r)!r!}$

$\sin A = \dfrac{opposite}{hypotenuse}$

$\cos A = \dfrac{adjacent}{hypotenuse}$

$\tan A = \dfrac{opposite}{adjacent}$

$a^2 + b^2 = c^2$

$d = rt$

$a_n = a_1 + (n-1)d$

$a_1 = 1^{\text{st}}\text{ term},\ a_n = a_{n-1} + d$

$g_n = g_1 r^{n-1}$

$g_1 = 1^{\text{st}}\text{ term},\ g_n = rg_{n-1}$

$I = prt$

$A = P(1 + \dfrac{r}{n})^{nt}$

$A = Pe^{rt}$

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

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

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Area / Volume

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

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

$Area = \pi r^2$

$Circumference = \pi d$

$Volume = Bh$

$Volume = \dfrac{1}{3}Bh$

$Volume = \dfrac{4}{3}\pi r^3$

$Surface\ Area = 4\pi r^2$