

TX PACT: MATHEMATICS: GRADES 7–12 FORMULAS

| Formula | Description |
|---|--------------------------------------|
| $V = \frac{1}{3}Bh$ | Volume of a right cone and a pyramid |
| $V = Bh$ | Volume of a cylinder and prism |
| $V = \frac{4}{3}\pi r^3$ | Volume of a sphere |
| $A = 2\pi rh + 2\pi r^2$ | Surface area of a cylinder |
| $A = 4\pi r^2$ | Surface area of a sphere |
| $A = \pi r\sqrt{r^2 + h^2} = \pi r\ell$ | Lateral surface area of a right cone |
| $a = p\left(1 + \frac{r}{n}\right)^{nt}$ | Interest compounded periodically |
| $a = pe^{rt}$ | Interest compounded continuously |
| $S_n = \frac{n}{2}[2a + (n - 1)d] = \frac{n}{2}(a + a_n)$ | Sum of an arithmetic series |
| $S_n = \frac{a(1 - r^n)}{1 - r}$ | Sum of a finite geometric series |
| $\sum_{n=0}^{\infty} ar^n = \frac{a}{1 - r}, r < 1$ | Sum of an infinite geometric series |
| $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ | Law of sines |
| $c^2 = a^2 + b^2 - 2ab \cos C$ | Law of cosines |
| $(x - h)^2 + (y - k)^2 = r^2$ | Equation of a circle |
| $(y - k) = 4c(x - h)^2$ | Equation of a parabola |
| $\frac{(x - h)^2}{a^2} + \frac{(y - k)^2}{b^2} = 1$ | Equation of an ellipse |
| $\frac{(x - h)^2}{a^2} - \frac{(y - k)^2}{b^2} = 1$ | Equation of a hyperbola |