|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| triangle base height | [Triangle](http://www.mathsisfun.com/triangle.html)Area = ½ × b × hb = baseh = vertical height |   | square | [Square](http://www.mathsisfun.com/geometry/square.html)Area = a2a = length of side |
| rectangle | [Rectangle](http://www.mathsisfun.com/geometry/rectangle.html)Area = w × hw = widthh = height |   | parallelogram | [Parallelogram](http://www.mathsisfun.com/geometry/parallelogram.html)Area = b × hb = baseh = vertical height |
| trapezoid | [Trapezoid (US)](http://www.mathsisfun.com/geometry/trapezoid.html)[Trapezium (UK)](http://www.mathsisfun.com/geometry/trapezoid.html)Area = ½(a+b) × hh = vertical height |   | circle | [Circle](http://www.mathsisfun.com/geometry/circle-area.html) Area = π × r2 Circumference = 2 × π × rr = radius |
| ellipse | [Ellipse](http://www.mathsisfun.com/geometry/ellipse.html)Area = πab |   | sector | [Sector](http://www.mathsisfun.com/geometry/circle-sector-segment.html)Area = ½ × r2 × θ r = radiusθ = angle in **radians** |

**Area of Plane Shapes**

**Volume Formulas**

cube = a 3 

rectangular prism = a b c 

irregular prism = **b** h 

cylinder = **b** h = *pi* r 2 h 

pyramid = (1/3) **b** h 

cone = (1/3) **b** h = 1/3 *pi* r 2 h 

sphere = (4/3) *pi* r 3 

ellipsoid = (4/3) *pi* r1 r2 r3 

 ***Properties of Exponents***

1. xa *xb* = *xa+b* Examples: *x*3 x2 = x5, x1/2 *x*1/3 = *x*5/6, *x*3 x 1/2 = *x*5/2

2. xa xb = xa *b* Examples: *x*5 *x*3 = *x*2, *x*3 *x*5 = *x* 2, *x*3 *x*1/2 = *x*5/2

3. (*xa*)*b* = *xab* Examples: (*x*3)2 = *x*6, (*x* 1/2)7 = x 7/2, (*x*2/3)5/7 = *x*10/21

