Elementary Mathematics Notes (Diagrams)

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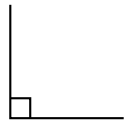
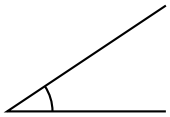
1 Angles, Triangles & Polygons

Names of angles

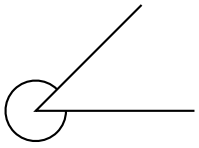


right angle
($90°$)



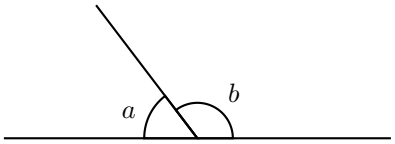
acute angle
($< 90°$)

obtuse angle
($90° < \theta < 180°$)

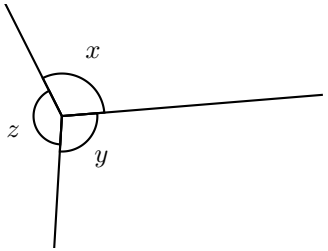


reflex angle
($180° < \theta < 360°$)

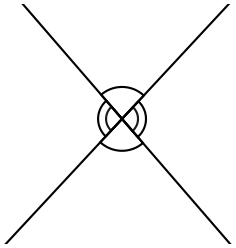
Types of angles



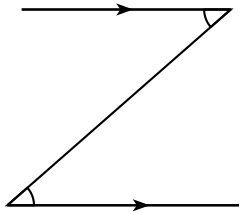
$\angle$ on a st. line



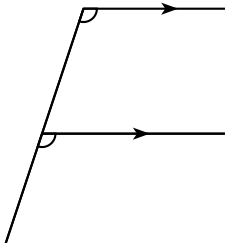
$\angle$ at a pt.



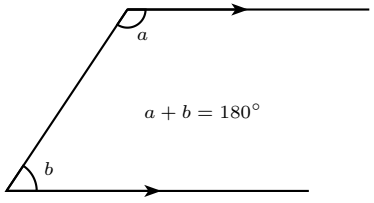
vert. opp. $\angle$



alt. $\angle$



corr. $\angle$

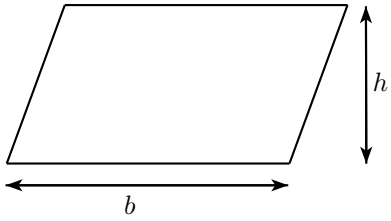


int. $\angle$

2 Mensuration

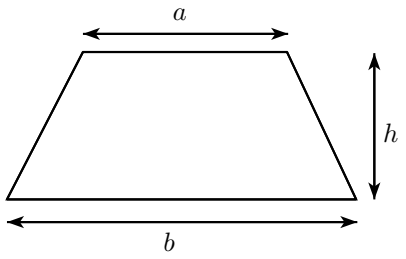
Perimeter & area

Parallelogram



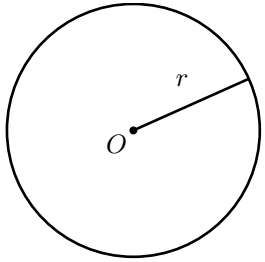
Area $= b \times h$

Trapezium



Area $= \frac{a+b}{2} \times h$

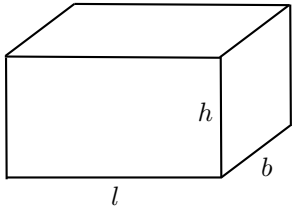
Circle



Circumference $= 2\pi r$
Area $= \pi r^2$

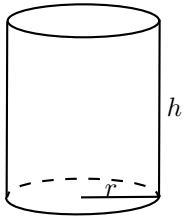
Surface area & volume

Cuboid



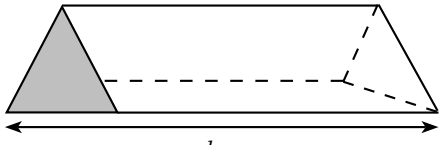
Surface area $= 2(lb + lh + bh)$
Volume $= l \times b \times h$

Cylinder



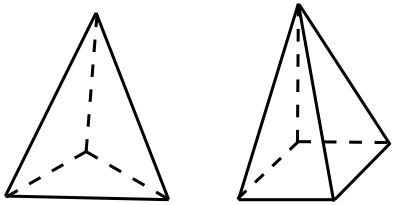
Surface area = 2 × base area + curved surface area
$= 2\pi r^2 + 2\pi rh$
Volume = base area × height
$= \pi r^2 h$

Prism



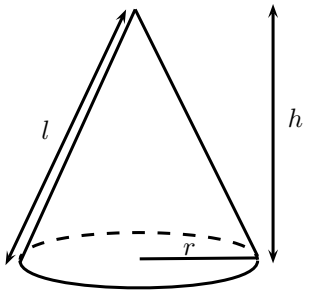
Volume = cross-sectional area × l

Pyramid



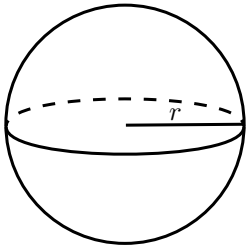
Volume $= \frac{1}{3}\times$ base area × height

Cone



Volume $= \frac{1}{3}\times$ base area × height
$= \frac{1}{3}\pi r^2 h$
Surface Area = base area + curved surface area
$= \pi r^2 + \pi rl$

Sphere

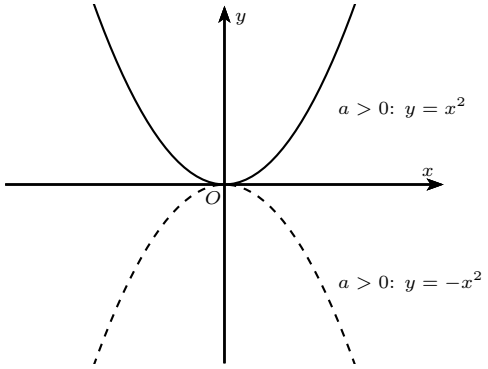


Volume $= \frac{4}{3}\pi r^3$
Surface area $= 4\pi r^2$

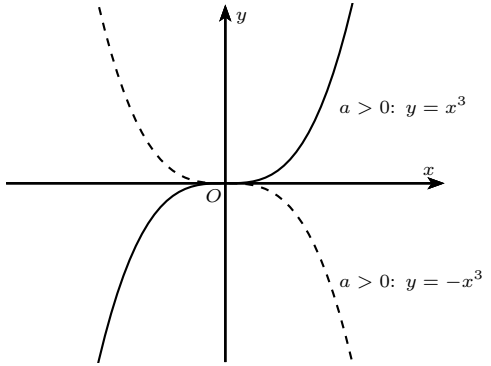
3 Functions & Graphs

Graphs of power functions ($y = ax^n$)

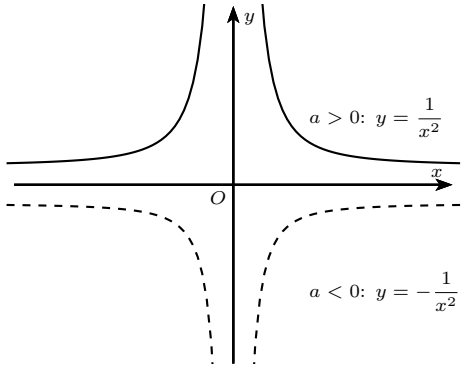
$n = 2$



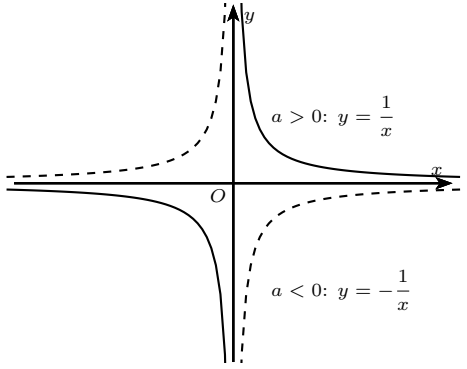
$n = 3$



$n = -2$



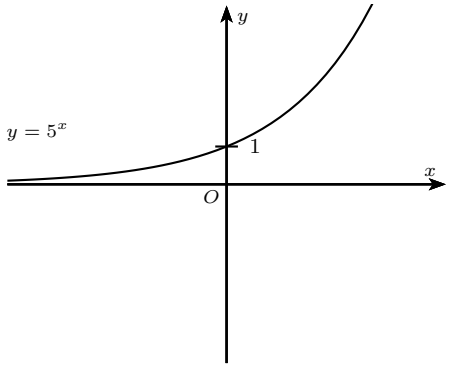
$n = -1$



4 Exponential Function (Graphs)

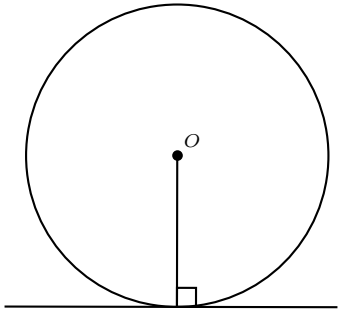
Graphs of exponential function

$\boxed{y = a^x}$

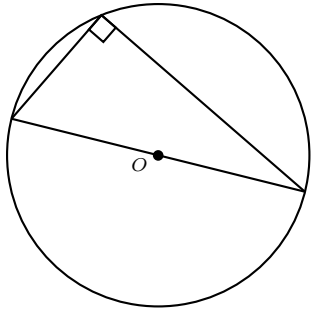


5 Properties Of Circles

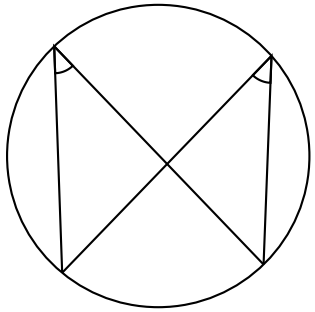
Angle properties



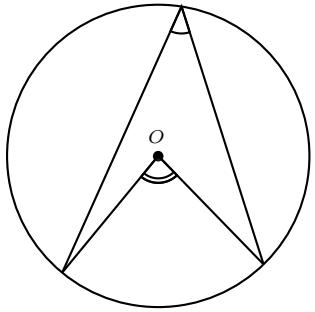
tan. $\perp$ rad.



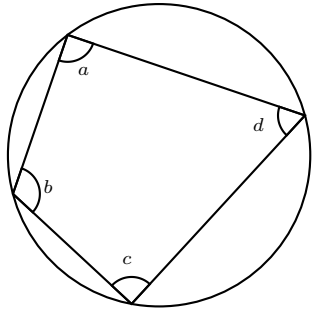
rt. $\angle$ in semicircle



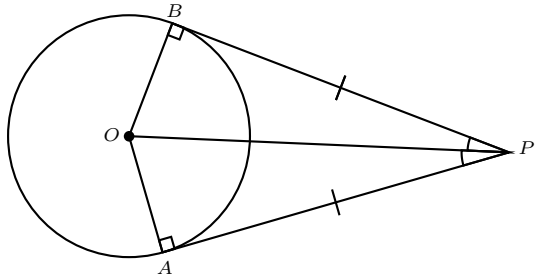
$\angle$s in same seg.



$\angle$ at centre = 2 $\angle$ at circ.



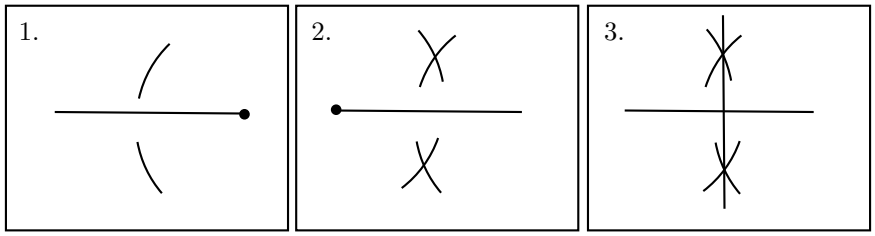
$\angle$s in opp. seg. ($a + c = b + d = 180°$)



tan. from ext. pt.

6 Bisectors

Constructing perpendicular bisector



Constructing angle bisector