2018 Senior External Examination

Mathematics A

Paper Two — Resource book

Thursday 25 October 2018
1:15 pm to 4:25 pm

Directions

You may write in this book during perusal time.

Contents

- Formulas

After the examination session

Take this book when you leave.

Queensland Government
Queensland Curriculum & Assessment Authority
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For all Queensland schools

Area

Circle

$A = \pi r^2$

r = radius of the circle

Triangle

$A = \frac{1}{2}bh$

b = base length

h = perpendicular height

Parallelogram

$A = bh$

b = base length

h = perpendicular height

Trapezium

$A = \frac{1}{2}h(a+b)$

a and b are parallel sides

h = perpendicular height

Sector

$A = \frac{\theta}{360} \times \pi r^2$

θ = number of degrees in the central angle

Circumference of a circle

$C = \pi D$

D = diameter

Sphere

$SA = 4\pi r^2$

Closed cylinder

$SA = 2\pi rh + 2\pi r^2$

Volume

r = radius of base

h = perpendicular height

A = base area

Cone

$V = \frac{1}{3}\pi r^2 h$

Sphere

$V = \frac{4}{3}\pi r^3$

Cylinder

$V = \pi r^2 h$

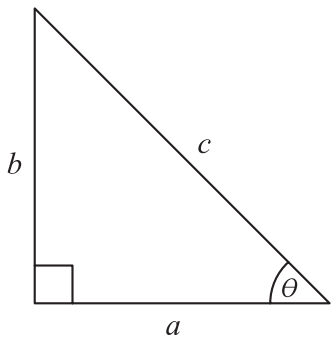
Pyramid

$V = \frac{1}{3}Ah$

Prism

$V = Ah$

Trigonometry



$\sin\theta = \frac{b}{c}, \ \cos\theta = \frac{a}{c}$ and $\tan\theta = \frac{b}{a}$

Pythagoras' theorem: $c^2 = a^2 + b^2$

Financial formulas

Simple interest

$I = P\,r\,n$

$P =$ initial quantity

$r =$ percentage interest rate per period expressed as a decimal

$n =$ number of periods

Compound interest

$A = P(1+r)^n$

$A =$ final balance

$P =$ initial quantity

$r =$ percentage interest rate per compounding period expressed as a decimal

$n =$ number of compounding periods

Diminishing value formula

$S = V_0(1-r)^n$

$S =$ salvage value of an asset after n periods

$V_0 =$ initial value of asset

$r =$ percentage interest rate per period expressed as a decimal

$n =$ number of periods

Percentage dividend

$$\frac{\text{Dividend per share}}{\text{Face value of share}} \times 100$$

Percentage yield

$$\frac{\text{Dividend per share}}{\text{Market price per share}} \times 100$$

Earth geometry

Great circle distance

Angle difference $\times$ 111.2 km

Angle difference $\times$ 60 nautical miles

Time

1° longitude difference = 4 minutes time difference

Navigation

1 nautical mile = 1.852 km

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