Directions
You may write in this book during perusal time.

Contents
• Formulas

After the examination session
Take this book when you leave.
Statistics
You are expected to calculate summary statistics using statistical functions on your calculator.

Geometry

Circumference of a circle
\[ C = \pi D \]
D = diameter

Area of a circle
\[ A = \pi r^2 \]
r = radius of the circle

Area of a triangle
\[ A = \frac{1}{2} bh \]
b = base length
h = perpendicular height

Area of a parallelogram
\[ A = bh \]
b = base length
h = perpendicular height

Area of a trapezium
\[ A = \frac{1}{2} h(a + b) \]
a and b are parallel sides
h = perpendicular height

Area of a sector
\[ A = \frac{\theta}{360} \times \pi r^2 \]
\[ \theta = \text{number of degrees in the central angle} \]

Volume

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
\[ V = Ah \]

Surface area

Sphere
\[ A = 4\pi r^2 \]

Closed cylinder
\[ A = 2\pi rh + 2\pi r^2 \]

Closed cone
\[ A = \pi r^2 + \pi r\sqrt{r^2 + h^2} \]
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

$I = P \times r \times n$

$P =$ 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 the asset
$r =$ percentage interest rate per period expressed as a decimal
$n =$ number of periods

Dividend percentage

$\text{Dividend} \% = \frac{\text{dividend per share}}{\text{face value of share}} \times 100$

Percentage yield

$\text{Yield} \% = \frac{\text{dividend per share}}{\text{market price per share}} \times 100$

Flat rate interest reducing balance rate

$E = \frac{2Rn}{n+1}$

$E =$ effective rate of interest
$R =$ annual flat rate of interest
$n =$ number of equal instalments

Navigation

Along a meridian of longitude,
$1^\circ = 111$ kilometres
$1^\circ$ longitude difference = 4 minutes time difference

When required, note that:
- $1$ nautical mile $= 1.852$ kilometres
- $1$ kilometre $= 0.54$ nautical miles