MATHEMATICAL FORMULAE
RUMUS MATEMATIK

The following formulae may be helpful in answering the questions. The symbols given are the ones commonly used.
Rumus-rumus berikut boleh membantu anda menjawab soalan. Simbol-simbol yang diberi adalah yang biasa digunakan.

RELATIONS
PERKAITAN

1. $a^m \times a^n = a^{m+n}$.

2. $a^m \div a^n = a^{m-n}$

3. $(a^m)^n = a^{mn}$

4. $A^{-1} = \frac{1}{ad-bc}\begin{pmatrix} d & -b \\ -c & a \end{pmatrix}$

5. Distance / *Jarak*
$= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

6. Midpoint / *Titik tengah*
$(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

7. Average speed $= \frac{\text{distance travelled}}{\text{time taken}}$
Purata laju $= \frac{jarak\ yang\ dilalui}{masa\ yang\ diambil}$

8. Mean $= \frac{\text{sum of data}}{\text{number of data}}$
Min $= \frac{hasil\ tambah\ nilai\ data}{bilangan\ data}$

9. Mean $= \frac{\text{sum of (classmark} \times \text{frequency)}}{\text{sum of frequencies}}$
Min $= \frac{hasil tambah(nilai\ titik tengah\ kelas \times kekerapan)}{hasil\ tambah\ kekerapan}$

10. Pythagoras Theorem
Teorem Pithagoras
$c^2 = a^2 + b^2$

11. $P(A) = \frac{n(A)}{n(S)}$

12. $P(A') = 1 - P(A)$

13. $m = \frac{y_2 - y_1}{x_2 - x_1}$

14. $m = -\frac{y\text{-intercept}}{x\text{-intercept}}$
$m = -\frac{pintasan\text{-}y}{pintasan\text{-}x}$

SHAPE AND SPACE
BENTUK DAN RUANG

1. Area of trapezium = $\frac{1}{2}$ × sum of parallel sides × height

   Luas trapezium = $\frac{1}{2}$ × *hasil tambah dua sisi selari* × *tinggi*

2. Circumference of circle = $\pi d = 2\pi r$
   Lilitan bulatan = $\pi d = 2\pi j$

3. Area of circle = πr^2
   Luas bulatan = πj^2

4. Curved surface area of cylinder = $2\pi rh$
   Luas permukaan melengkung silinder = $2\pi jt$

5. Surface area of sphere = $4\pi r^2$
   Luas permukaan sfera = $4\pi j^2$

6. Volume of right prism = cross sectional area × length
   Isi padu prisma tegak = *luas keratan rentas* × *panjang*

7. Volume of cylinder = $\pi r^2 h$
   Isi padu silinder = $\pi j^2 t$

8. Volume of cone = $\frac{1}{3}\pi r^2 h$

   Isi padu kon = $\frac{1}{3}\pi j^2 t$

9. Volume of sphere = $\frac{4}{3}\pi r^3$

   Isi padu sfera = $\frac{4}{3}\pi j^3$

10. Volume of right pyramid = $\frac{1}{3}$ × base area × height

    Isi padu piramid tegak = $\frac{1}{3}$ × *luas tapak* × *tinggi*

11. Sum of interior angles of a polygon
    Hasil tambah sudut pedalaman poligon
    = $(n - 2) \times 180°$

12. $\dfrac{\text{arc length}}{\text{circumference of circle}} = \dfrac{\text{angle subtended at centre}}{360^\circ}$

$\dfrac{panjang\ lengkok}{lilitan\ bulatan} = \dfrac{sudut\ pusat}{360°}$

13. $\dfrac{\text{area of sector}}{\text{area of circle}} = \dfrac{\text{angle subtended at centre}}{360^\circ}$

$\dfrac{luas\ sektor}{luas\ bulatan} = \dfrac{sudut\ pusat}{360°}$

14. Scale factor, $k = \dfrac{PA'}{PA}$

Faktor skala, $k = \dfrac{PA'}{PA}$

15. Area of image $= k^2 \times$ area of object

Luas imej $= k^2 \times$ *luas objek*

