

# National 5 Maths 2026 Paper 1

①  $(y+4)(y^2-3y+2)$   
 $= \underline{\underline{y^3 + y^2 - 10y + 8}}$

$$\begin{array}{r|rrrr} & y^2 & -3y & +2 & \\ y & y^3 & -3y^2 & +2y & \\ +4 & +4y^2 & -12y & +8 & \end{array}$$

3

②  $60\% \rightarrow 180 \text{ miles}$   
 $10\% \rightarrow 30 \text{ miles}$   
 $100\% \rightarrow \underline{\underline{300 \text{ miles}}}$

3

③ (a) 2, 2, (4) 5, 6, | 8, 14, (15) 18, 20      IQR =  $15 - 4$   
 $= \underline{\underline{11}}$   
 $Q_2 = \underline{\underline{7}}$

(b)

|      | Ave | Spread |
|------|-----|--------|
| rest | 7   | 11     |
| cafe | 5   | 12     |

• On average, waiting times at restaurant were longer.

• Waiting times at cafe were more widely spread.

5

④  $x+8 < 3(x-2)+20$   
 $x+8 < 3x-6+20$   
 $x+8 < 3x+14$   
 $-6 < 2x$   
 $-3 < x$   
 $x > \underline{\underline{-3}}$

3

⑤  $2\frac{3}{4} + 1\frac{2}{3}$   
 $= \frac{11}{4} + \frac{5}{3}$   
 $= \frac{33}{12} + \frac{20}{12}$   
 $= \underline{\underline{\frac{53}{12} \text{ miles}}}$

2

⑥ (a)  $M_{AB} = \frac{94-54}{90-30}$   
 $= \frac{40}{60}$   
 $= \frac{2}{3}$

$y = mx + c$   
 $54 = \frac{2}{3} \times 30 + c$   
 $54 = 20 + c$   
 $c = 34$

$y = \frac{2}{3}x + 34$

$F = \underline{\underline{\frac{2}{3}P + 34}}$

(b)  $F = \frac{2}{3}(33) + 34$   
 $= 22 + 34$   
 $= \underline{\underline{56}}$

4

$$\begin{aligned}
 \textcircled{7} \quad |d| &= \sqrt{4^2 + (-5)^2 + 7^2} \\
 &= \sqrt{16 + 25 + 49} \\
 &= \sqrt{90} \\
 &= \sqrt{9} \sqrt{10} \\
 &= \underline{\underline{3\sqrt{10}}}
 \end{aligned}$$

$$\begin{array}{r}
 16 \\
 25 \\
 + 49 \\
 \hline
 90 \\
 \hline
 2
 \end{array}$$

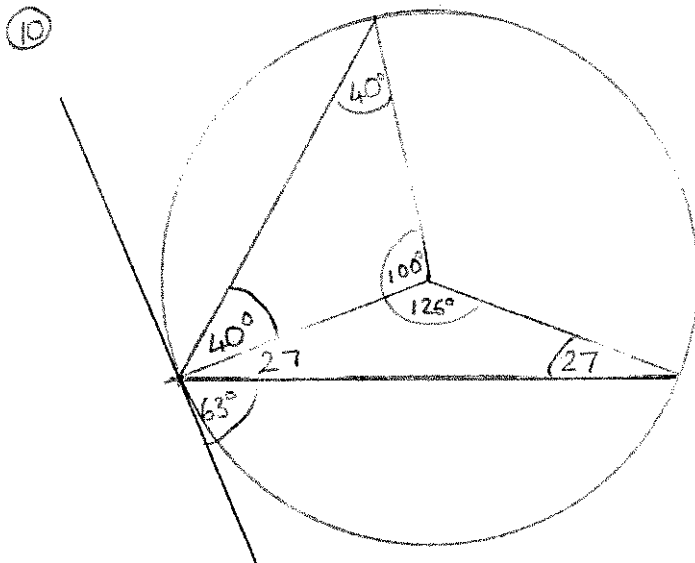
3

$$\begin{aligned}
 \textcircled{8} \quad P &= \sqrt{T-3L} \\
 P^2 &= T-3L \\
 T &= \underline{\underline{P^2+3L}}
 \end{aligned}$$

2

$$\begin{aligned}
 \textcircled{9} \quad y &= kx^2 \\
 24 &= k(2)^2 \\
 24 &= 4k \\
 k &= \underline{\underline{6}}
 \end{aligned}$$

2



$$\begin{array}{r}
 90 \\
 - 63 \\
 \hline
 27
 \end{array}
 \quad
 \begin{array}{r}
 27 \\
 \times 2 \\
 \hline
 54
 \end{array}
 \quad
 \begin{array}{r}
 180 \\
 - 54 \\
 \hline
 126
 \end{array}$$

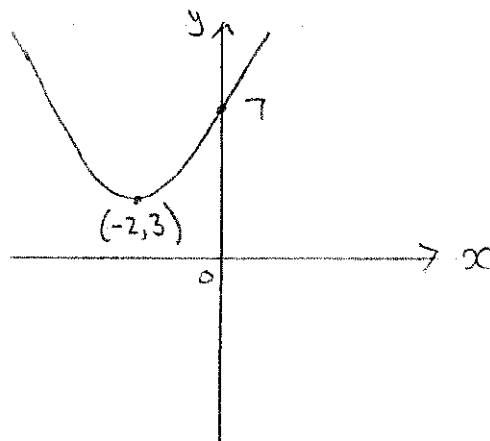
$$\begin{aligned}
 \text{AOC} &= 100 + 126 \\
 &= \underline{\underline{226^\circ}}
 \end{aligned}$$

3

$$\textcircled{11} \text{ a) } \underline{\underline{G(12, 8, 0)}} \quad \text{b) } \underline{\underline{M(12, 5, 4)}}$$

2

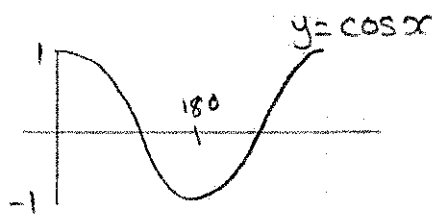
$$\begin{aligned}
 \textcircled{12} \quad \text{TP @ } &(-2, 3) \\
 y\text{-int (} x=0 \text{): } &y = (0+2)^2 + 3 \\
 &= 4 + 3 \\
 &= 7
 \end{aligned}$$



3

⑬  $f(x) = 5 \cos 2x$

$$\begin{aligned} f(90) &= 5 \cos 2(90) \\ &= 5 \cos 180 \\ &= 5(-1) \\ &= \underline{\underline{-5}} \end{aligned}$$



2

⑭  $10x^2 + 11x - 6 = 0$

$$(5x - 2)(2x + 3) = 0$$

$$\downarrow$$
  

$$5x - 2 = 0$$

$$5x = 2$$

$$x = \frac{2}{5}$$

$$\downarrow$$
  

$$2x + 3 = 0$$

$$2x = -3$$

$$x = -\frac{3}{2}$$

$$\begin{array}{r|l} & 5x \quad -2 \\ 2x & 10x^2 \quad -4x \\ +3 & 15x \quad -6 \end{array}$$

3

## Paper 2

①  $100\% - 28\%$   
 $= 72\%$   
 $= 0.72$

$$\begin{aligned} &22600 \times 0.72^3 \\ &= 84\frac{3}{5} \cdot 4048 \\ &\approx \underline{\underline{\pounds 8440}} \end{aligned}$$

4

②  $a^2 = b^2 + c^2 - 2bc \cos A$   
 $= 5^2 + 4^2 - 2(5)(4) \cos 106$   
 $a = \sqrt{52.02}$   
 $= 7.212...$   
 $\approx \underline{\underline{7.2 \text{ cm}}}$

3

③  $LSF = \frac{8}{12}$        $VSF = \left(\frac{2}{3}\right)^3$        $Vol = \left(\frac{2}{3}\right)^3 \times 540$   
 $= \frac{2}{3}$        $= \underline{\underline{160 \text{ ml}}}$

3

④ (a)  $5c + 6p = 45$  ①

(b)  $7c + 4p = 52$  ②

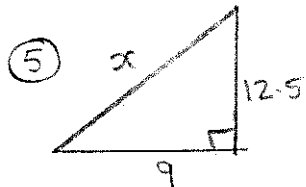
(c) ①  $\times 2$ :  $10c + 12p = 90$  ③

②  $\times 3$ :  $21c + 12p = 156$  ④

④ - ③:  $11c = 66$   
 $c = 6$

Sub  $c=6$  into ①:  $5(6) + 6p = 45$   
 $30 + 6p = 45$   
 $6p = 15$   
 $p = \frac{5}{2}$

$$\begin{aligned} &10c + 8p \\ &= 10(6) + 8\left(\frac{5}{2}\right) \\ &= 60 + 20 \\ &= \underline{\underline{80 \text{ minutes}}} \end{aligned}$$



$$\begin{aligned}
 x^2 &= 9^2 + 12.5^2 \\
 x &= \sqrt{237.25} \\
 x &= 15.402... \\
 x &\approx \underline{\underline{15.4 \text{ cm}}}
 \end{aligned}$$

3

⑥(a)  $V = \frac{4}{3} \pi r^3$

$$\begin{aligned}
 &= \frac{4}{3} \times \pi \times 5^3 \\
 &= \frac{500}{3} \pi \\
 &= 523.598... \\
 &\approx 523.6 \text{ cm}^3
 \end{aligned}$$

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

$$\begin{aligned}
 \frac{500\pi}{3} &= \frac{1}{3} \pi (6)^2 h \\
 \frac{500}{36} &= h \\
 h &= 13.88... \\
 h &\approx \underline{\underline{13.9 \text{ cm}}}
 \end{aligned}$$

$$\begin{aligned}
 V &= \frac{1}{3} \pi r^2 h \\
 523.6 &= \frac{1}{3} \pi \times 6^2 h \\
 \text{or } 523.6 &= 12 \pi h \\
 h &= \frac{523.6}{12 \pi} \\
 h &= 13.888... \\
 h &\approx \underline{\underline{13.9 \text{ cm}}}
 \end{aligned}$$

5

⑦ Short sides | long side

$$\begin{array}{c|c}
 88^2 + 105^2 & 137^2 \\
 \hline
 = 18769 & 18769
 \end{array}$$

$88^2 + 105^2 = 137^2 \therefore$  The triangle is right angled.

3

⑧  $5 \tan x + 3 = 4$

$$\begin{aligned}
 \tan x &= \frac{1}{5} \\
 \text{RA} &= \tan^{-1}\left(\frac{1}{5}\right) \\
 &= 11.3^\circ
 \end{aligned}$$

$$\frac{s}{\sqrt{t}} \frac{A}{c}$$

$$\begin{aligned}
 \text{1st Quad: } 11.3 \\
 \text{3rd Quad: } 180 + 11.3 = 191.3
 \end{aligned}$$

$$\underline{\underline{x = 11.3^\circ, 191.3^\circ}}$$

3

⑨  $\frac{x^2 - 81}{5} \div \frac{x + 9}{2}$

$$\begin{aligned}
 &= \frac{(x+9)(x-9)}{5} \times \frac{2}{x+9} \\
 &= \underline{\underline{\frac{2(x-9)}{5}}}
 \end{aligned}$$

3

⑩ Area of Sector:  $\frac{9}{360} = \frac{\cancel{1}}{\pi r^2} = \frac{a}{\pi r^2}$

$$\frac{72}{360} = \frac{a}{11^2 \pi}$$

$$a = \frac{11^2 \pi \times 72}{360} = 76.0265...$$

Area of  $\Delta = \frac{1}{2} ab \sin C$

$$= \frac{1}{2} \times 11^2 \times \sin 72$$

$$= 57.5389...$$

Area of segment =  $76.0265 - 57.5389$

$$= 18.487...$$

$$\approx \underline{\underline{18.5 \text{ cm}^2}}$$

⑪  $\frac{a^{17}}{(3a^4)^3} = \frac{a^{17}}{27a^{12}} = \underline{\underline{\frac{a^5}{27}}}$

⑫  $\cos x \sin^2 x + \cos^3 x$   
 $= \cos x (\sin^2 x + \cos^2 x)$   
 $= \cos x (1)$   
 $= \underline{\underline{\cos x}}$

⑬ (a) length =  $6 + 2x$  (b)  $A = lb$   
 $17 = (6 + 2x)(2 + x)$   
 $17 = 12 + 6x + 4x + 2x^2$   
 $0 = 2x^2 + 10x - 5$

(c)  $a = 2$   
 $b = 10$   
 $c = -5$   
 $\Delta = b^2 - 4ac$   
 $= 10^2 - 4(2)(-5)$   
 $= 100 + 40$   
 $= 140$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$x = \frac{-10 \pm \sqrt{140}}{4}$$

$$= 0.458,$$
  
 $\approx \underline{\underline{0.46 \text{ m}}}$

~~$-5.458$~~

(

(