

N5 Maths (Seniors) Homework (2)

(38)

(1) (a) $C = \pi d$
 $C = \pi \times 6$ ✓
 $C = 18.849\dots$
 $C = 18.8 \text{ cm}$ (3s.f.)

(b) $C = \pi d$ $d = 7 \times 2 = 14 \text{ cm}$
 $C = \pi \times 14$ ✓
 $C = 43.982\dots$
 $C = 44.0 \text{ cm}$ (3s.f.)

(4)

(2) (a) $A = \pi r^2$
 $A = \pi \times 2^2$ ✓
 $A = 12.566\dots$
 $A = 12.6 \text{ m}^2$ (3s.f.)

(b) $A = \pi r^2$ $d = 24 \text{ mm}$
 $A = \pi \times 12^2$ ✓ $r = 12 \text{ mm}$
 $A = 452.389\dots$
 $A = 452 \text{ mm}^2$ (3s.f.)

(4)

(3) arc AB = $\frac{140}{360} \times \pi d$ ✓
 $= \frac{140}{360} \times \pi \times 72$ ✓
 $= 87.964\dots$ ✓
 $= 88.0 \text{ cm}$ (3s.f.)

(3)

(4) area of sector = $\frac{135}{360} \times \pi r^2$ ✓
 $= \frac{135}{360} \times \pi \times 6.8^2$ ✓
 $= 54.475\dots$
 $= 54.5 \text{ cm}^2$ (3s.f.)

(3)

(5) length of arc = $\frac{130}{360} \times \pi d$ ✓
 $= \frac{130}{360} \times \pi \times 3.2$ ✓
 $= 3.6302\dots$
 $= 3.63 \text{ m}$ (3s.f.)

(4)

perimeter
 $= 3.63 + 1.6 + 1.6$
 $= 6.83 \text{ m}$ ✓

$$\textcircled{6} \quad \text{(a)} \quad \text{angle} = \frac{360 - 100}{360} \checkmark$$

$$\begin{aligned} \text{area of sector} &= \frac{260}{360} \times \pi r^2 \\ &= \frac{260}{360} \times \pi \times 30^2 \\ &= 2042.035 \dots \\ &= 2042 \text{ cm}^2 \checkmark \text{ (4 s.f.)} \end{aligned}$$

$$\begin{aligned} \text{(b) length of arc} &= \frac{260}{360} \times \pi r \\ &= \frac{260}{360} \times \pi \times 60 \checkmark \\ &= 136.135 \dots \\ &= 136 \text{ cm} \checkmark \text{ (3 s.f.)} \end{aligned}$$

$\textcircled{7}$

$$\begin{aligned} \textcircled{7} \quad \text{angle} &= \frac{\text{length of arc} \checkmark \times 360}{\pi r} \\ &= \frac{21 \checkmark \times 360}{\pi \times 120} \\ &= 20.053 \dots \\ &= 20.1^\circ \text{ (3 s.f.)} \checkmark \end{aligned}$$

$\textcircled{3}$

$$\begin{aligned} \textcircled{8} \quad \text{(a)} \quad &\sqrt{2} \times \sqrt{18} \\ &= \sqrt{36} \checkmark \\ &= 6 \checkmark \end{aligned}$$

$$\begin{aligned} \text{(b)} \quad &\sqrt{2} + \sqrt{18} \\ &= \sqrt{2} + \sqrt{9 \times 2} \\ &= \sqrt{2} + 3\sqrt{2} \\ &= 4\sqrt{2} \checkmark \end{aligned}$$

(c)

$$\frac{\sqrt{2} \times \sqrt{18}}{\sqrt{2} + \sqrt{18}}$$

$$= \frac{6}{4\sqrt{2}}$$

$$= \frac{3}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$$

$$= \frac{3\sqrt{2}}{2\sqrt{4}}$$

$$= \frac{3\sqrt{2}}{4}$$

as required.

(7)

(9)

$$A = 6b$$

$$72 = 3\sqrt{2}b$$

$$b = \frac{72}{3\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}}$$

$$= \frac{72\sqrt{2}}{3\sqrt{4}}$$

$$= \frac{72\sqrt{2}}{6}$$

$$= 12\sqrt{2} \text{ cm.}$$

(3)