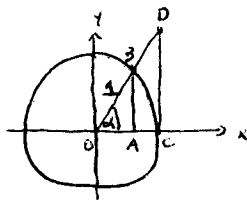


6.2 - 27

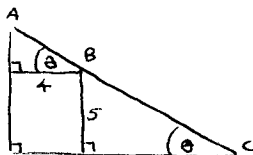


a) $\cos \alpha = \frac{OA}{1}$, so $OA = \cos \alpha$

b) $\sin \alpha = \frac{AD}{1}$, so $AD = \sin \alpha$

c) $\tan \alpha = \frac{AD}{OA}$, so $AD = \tan \alpha$

6.6

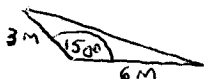


a) $\sin \theta = \frac{5}{AC}$, so $AC (\sin \theta) = 5$, $AC = \frac{5}{\sin \theta} = 5 \csc \theta$

b) $\cos \theta = \frac{4}{AC}$, so $AC (\cos \theta) = 4$, $AC = \frac{4}{\cos \theta} = 4 \sec \theta$

c) $AC = AB + BC = \frac{4}{\cos \theta} + \frac{5}{\sin \theta} = 4 \sec \theta + 5 \csc \theta$

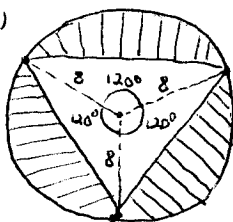
6.3 - 57



$A = \frac{1}{2} ab \sin \theta = \frac{1}{2} (3)(6) \sin 150^\circ = \frac{1}{2} (3)(6) \left(\frac{1}{2}\right) = \frac{9}{2} \text{ m}^2$

(since $\sin 150^\circ = \sin 30^\circ = \frac{1}{2}$)

58 a)



$A = A_{\text{circle}} - A_{\text{triangle}}$

$= \pi (8^2) - 3 \left[\frac{1}{2} \cdot 8 \cdot 8 \cdot \sin 120^\circ \right]$

$= 64\pi - 96 \left(\frac{\sqrt{3}}{2}\right)$ (since $\sin 120^\circ = \sin 60^\circ = \frac{\sqrt{3}}{2}$)

$= 64\pi - 48\sqrt{3} \text{ cm}^2 \approx 117.923 \text{ cm}^2$

7.1 - 6

a) $30^\circ = 30 \cdot \frac{\pi}{180} = \frac{\pi}{6} \text{ RADIANS}$

c) $300^\circ = 300 \cdot \frac{\pi}{180} = \frac{5\pi}{3} \text{ RADIANS}$

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$\theta + \frac{\pi}{5} + \frac{\pi}{6} = 180^\circ = \pi \text{ RADIANS}$, so $\theta = \pi - \frac{\pi}{5} - \frac{\pi}{6} = \frac{30\pi}{30} - \frac{6\pi}{30} - \frac{5\pi}{30} = \frac{19\pi}{30} \text{ RADIANS}$

4.5 - 13

$\frac{1}{4(x+h)+9} - \frac{1}{4x+9} \cdot \frac{(4(x+h)+9)(4x+9)}{(4(x+h)+9)(4x+9)} = \frac{(4x+9) - (4(x+h)+9)}{h(4(x+h)+9)(4x+9)}$

$= \frac{4x+9-4x-4h-9}{h(4x+4h+9)(4x+9)} = \frac{-4h}{h(4x+4h+9)(4x+9)} = \frac{-4}{(4x+4h+9)(4x+9)}$

15

$\frac{\frac{1}{t^2} - \frac{1}{4}}{t^3 - 8} \cdot \frac{4t^2}{4t^2} = \frac{4 - t^2}{(4t^2)(t^3 - 8)} = \frac{-(t^2 - 4)}{(4t^2)(t^3 - 8)}$

$= \frac{-(t-2)(t+2)}{(4t^2)(t-2)(t^2+2t+4)} = \frac{-t+2}{(4t^2)(t^2+2t+4)}$