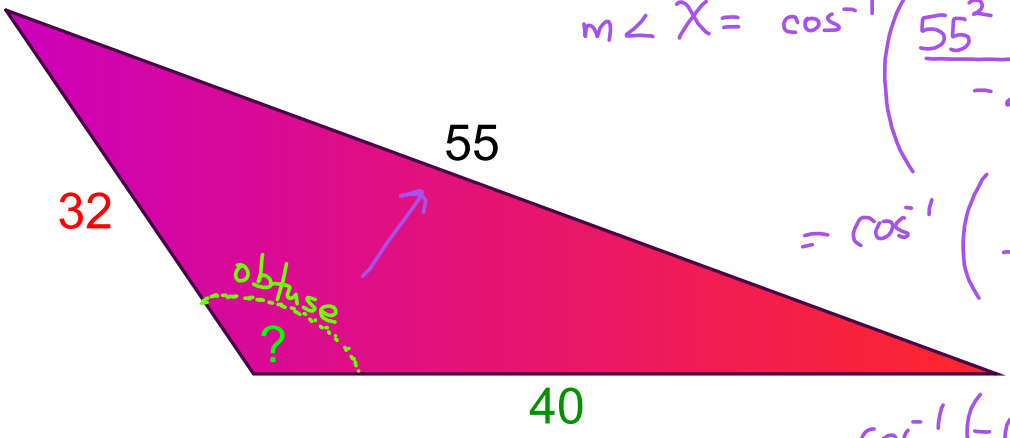


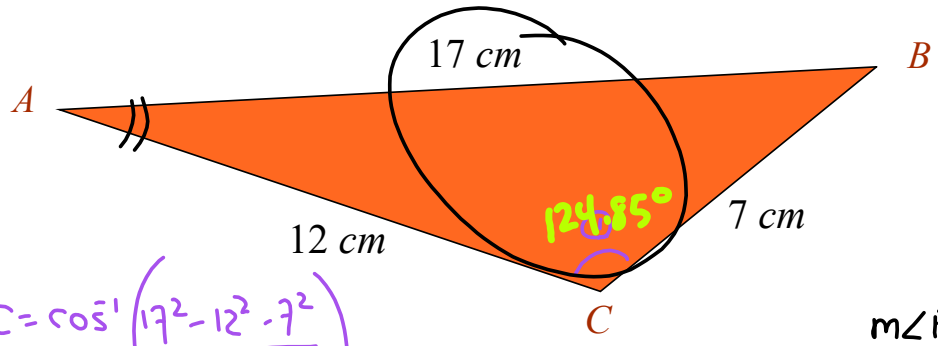
$m\angle X = \cos^{-1}\left(\frac{55^2 - 32^2 - 40^2}{-2(32)(40)}\right)$

$= \cos^{-1}\left(\frac{401}{-2560}\right)$

$= \cos^{-1}(-0.156641)$

$m\angle X = 99.01^\circ$ obtuse

Example: Solve the following triangle.



$m\angle C = \cos^{-1}\left(\frac{17^2 - 12^2 - 7^2}{-2(12)(7)}\right)$

$= \cos^{-1}\left(\frac{96}{-168}\right)$

$= 124.85°$

$\frac{17}{\sin 124.85°} = \frac{7}{\sin A}$

$\frac{7 \cdot \sin 124.85°}{17} = \sin A$

$0.337915 = \sin A$

$\sin^{-1}(0.337915) = m\angle A$

$m\angle A = 19.75°$

144.60

$m\angle B = 180° - 124.85° - 19.75°$

$= 35.4°$

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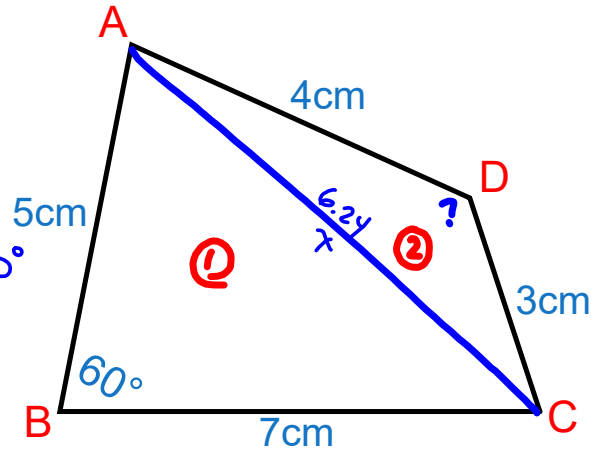
Question 10 *d*), *e*) & *f*)

d) 44.4° e) 125.1° f) 41.4°

p 244, #16

$m\angle ADC = ?$



$\overline{AC}$: $x^2 = 5^2 + 7^2 - 2(5)(7)\cos 60°$

$x^2 = 25 + 49 - 70(\frac{1}{2})$

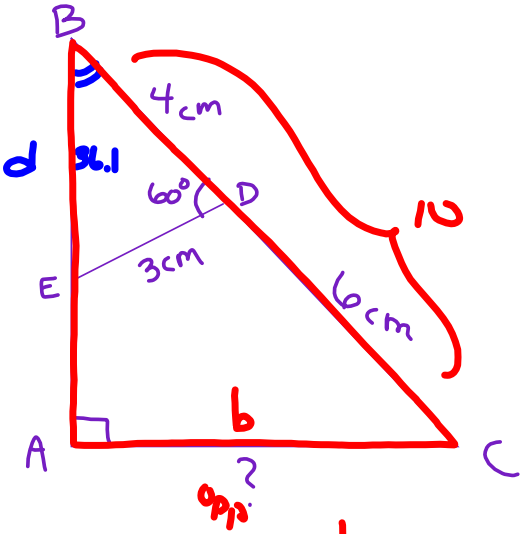
$x^2 = 39$

$x = \sqrt{39} = 6.24$

$m\angle ADC$: $m\angle D = \cos^{-1}\left(\frac{(6.24)^2 - 4^2 - 3^2}{-2(4)(3)}\right)$

$= \cos^{-1}\left(\frac{14}{-24}\right) = 125.69°$

15. Determine $m\overline{AC}$.



① $d^2 = 4^2 + 3^2 - 2(4)(3)(\cos 60°)$ $d \approx 3.61$

$d = 16 + 9 - 24(\frac{1}{2})$

$d = 13$

$d = \sqrt{13} = 3.61$

② $m\angle B = \cos^{-1}\left(\frac{3^2 - 4^2 - 13}{-2(4)(3.61)}\right)$

$= 46°$

③ $\sin 46° = \frac{b}{10}$ $b = 10 \cdot \sin 46°$

$\therefore 7.2$ cm