Pre-Calculus 12

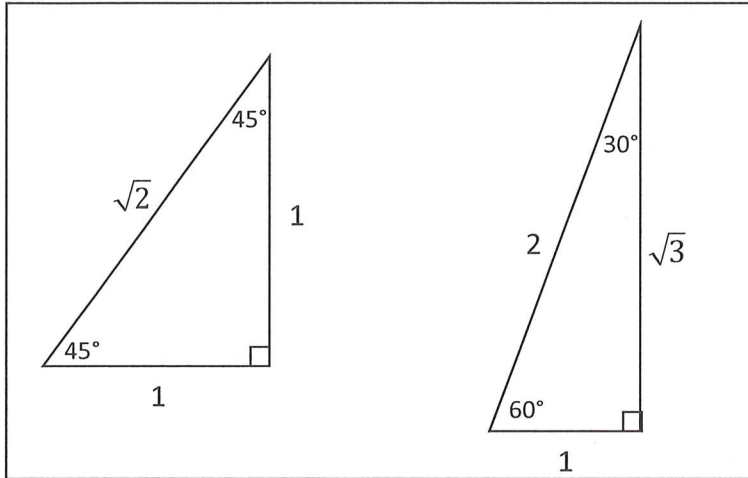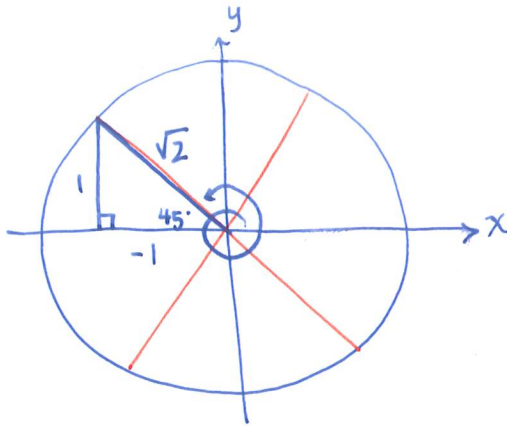6.3 – Radian Measure (part II)

Name:_____

Block: _____

Recall:

Ex. 1. Sketch each angle in standard position, and use the special triangles to determine the exact value of each trig ratio.
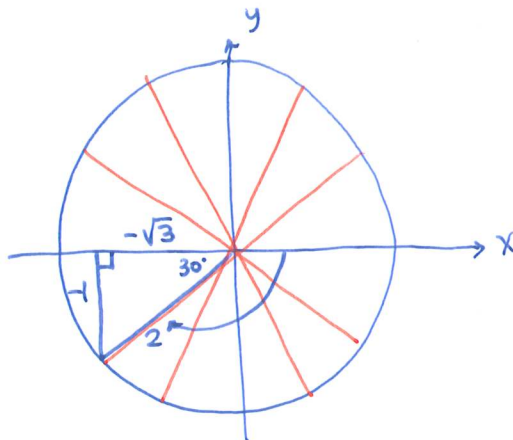
a) $\cos\dfrac{11\pi}{4}$

$\dfrac{180°}{4} = 45°$

$\cos\dfrac{11\pi}{4} = \dfrac{adj}{hyp} = \boxed{\dfrac{-1}{\sqrt{2}}}$
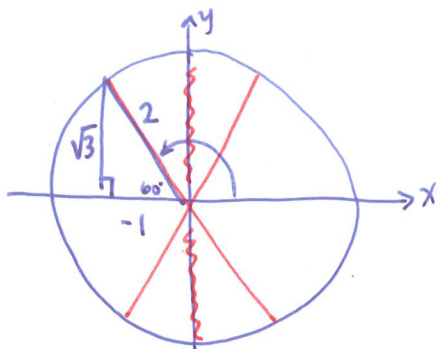
b) $\sin\left(-\dfrac{5\pi}{6}\right)$

$\dfrac{180°}{6} = 30°$

$\sin\left(-\dfrac{5\pi}{6}\right) = \dfrac{opp}{hyp} = \boxed{\dfrac{-1}{2}}$
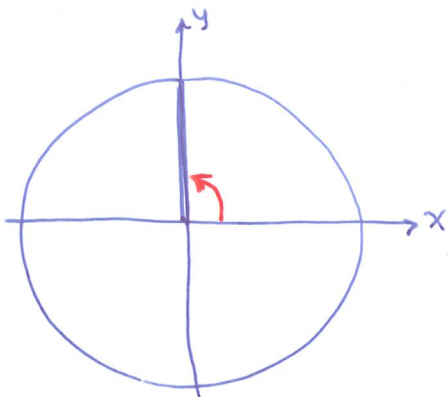
c) $\cot \dfrac{2\pi}{3}$

$\dfrac{180°}{3} = 60°$

$\cot \dfrac{2\pi}{3}$ = reciprocal of $\tan \dfrac{2\pi}{3}$

$\tan \dfrac{2\pi}{3} = \dfrac{opp}{adj} = \dfrac{\sqrt{3}}{-1}$

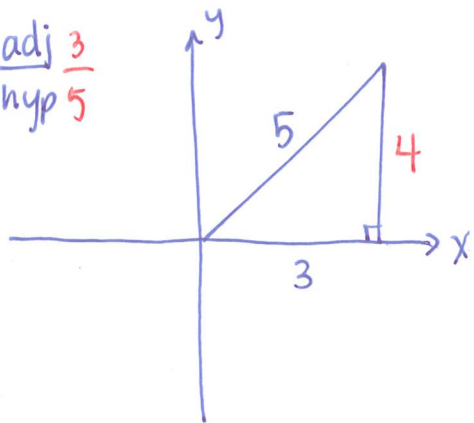∴ $\cot \dfrac{2\pi}{3} = \boxed{\dfrac{-1}{\sqrt{3}}}$

d) $\cos \dfrac{\pi}{2}$

imagine

$\cos \dfrac{\pi}{2} = \dfrac{adj}{hyp} = \dfrac{0}{1} = \boxed{0}$

Ex.2   Given $\cos \theta = \dfrac{3}{5}$, determine the exact value of the other 5 trig ratios for θ. To the nearest tenth of a radian, determine possible values for θ in the domain -2π ≤ θ ≤ 2π.

$\cos \theta = \dfrac{adj}{hyp}\ \dfrac{3}{5}$

⊕ and ⊖ angles!

$\sin \theta = \dfrac{4}{5}$ $\csc \theta = \dfrac{5}{4}$

$\cos \theta = \dfrac{3}{5}$ $\sec \theta = \dfrac{5}{3}$

$\tan \theta = \dfrac{4}{3}$ $\cot \theta = \dfrac{3}{4}$

$3^2 + b^2 = 5^2$

$b^2 = 25 - 9$

$b^2 = 16$

$b = 4$

$\cos^{-1}\left(\dfrac{3}{5}\right)$ in radians

$= 0.9$ or

0.9 - 2π

= -5.4

θ = 0.9 or -5.4

555

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