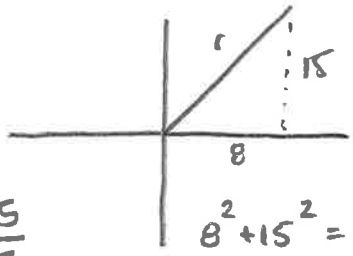
Section 7.2 and 7.3 – Check your Understanding

Given a point on the terminal side of angle θ. Evaluate the three trigonometric functions of θ

1. $(8, 15)$



$\sin\theta = \frac{15}{17}$

$\cos\theta = \frac{8}{17}$

$\tan\theta = \frac{15}{8}$

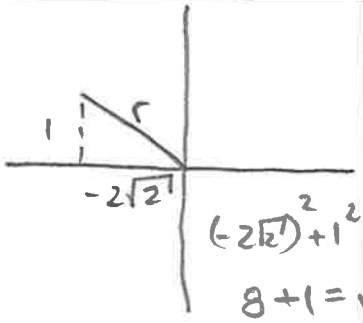
$8^2 + 15^2 = r^2$

$64 + 225 = r^2$

$289 = r^2$

$17 = r$

2. $(-2\sqrt{2}, 1)$



$\sin\theta = \frac{1}{3}$

$\cos\theta = \frac{-2\sqrt{2}}{3}$

$\tan\theta = \frac{-1}{2\sqrt{2}}$

$(-2\sqrt{2})^2 + 1^2 = r^2$

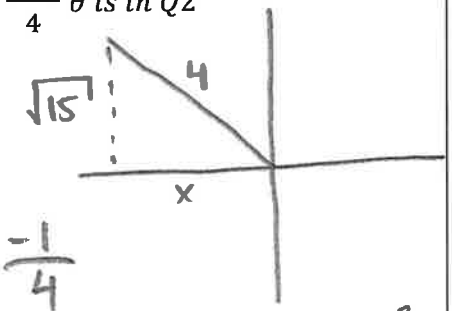
$8 + 1 = r^2$

$9 = r^2$

$3 = r$

Given one of three primary trigonometric functions, find the other two trigonometric function of θ

3. $\sin\theta = \frac{\sqrt{15}}{4}$ θ *is in Q2*



$\cos\theta = \frac{-1}{4}$

$\tan\theta = -\sqrt{15}$

$r^2 - y^2 = x^2$

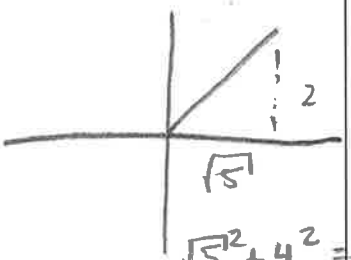
$16 - 15 = x^2$

$1 = x^2$

$1 = x$

but negative

4. $\tan\theta = \frac{2}{\sqrt{5}}$ $\sin\theta > 0$



$\sin\theta = \frac{2}{\sqrt{21}}$

$\cos\theta = \frac{\sqrt{5}}{\sqrt{21}}$

$\sqrt{5}^2 + 4^2 = r^2$

$5 + 16 = r^2$

$21 = r^2$

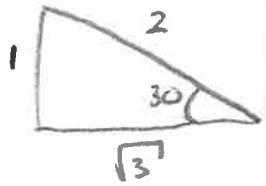
$\sqrt{21} = r$

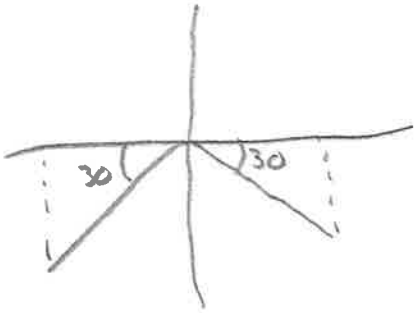
Pre-Calculus 11

Find all angles, $0° \leq \theta < 360°$, that satisfy each equation, use special angles and give exact answers, not decimals

5. $\sin\theta = -\frac{1}{2}$ ← ref angle in 30-60-90

neg so Q3 and Q4



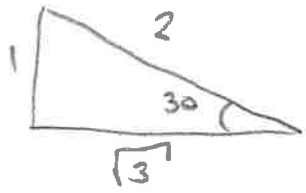


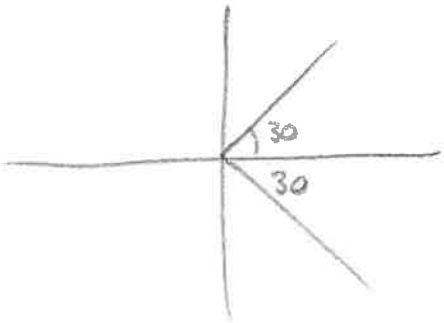
180 + 30 = 210°

360 − 30 = 330°

6. $\cos\theta = \frac{\sqrt{3}}{2}$ 30-60-90

pos Q1 Q4

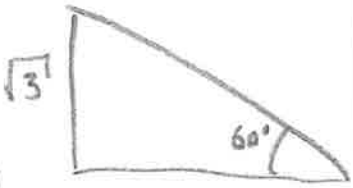




30°

330°

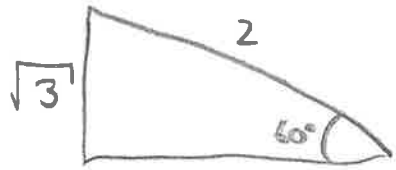
7. $\tan\theta = \frac{\sqrt{3}}{1}$ Q1 and Q3

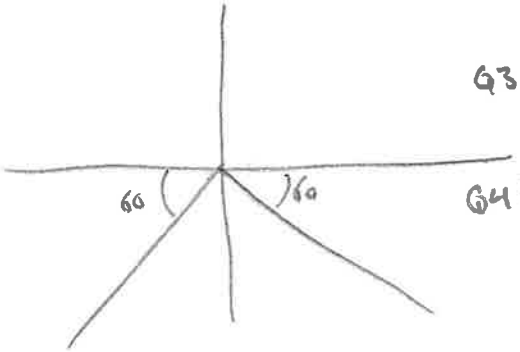


Q1: 60°

Q3: 180 + 60 = 240°

8. $\sin\theta = -\frac{\sqrt{3}}{2}$ Q3 Q4





Q3: 240°

Q4: 300°