

Mrs. Behnke

PART B: You may use a calculator for part B.

1. For
- $\triangle PQR$
- ,
- $p=5$
- ,
- $q=8$
- and
- $\angle P = 10^\circ$
- , determine the value of
- $\angle Q$
- .

$$\frac{\sin Q}{q} = \frac{\sin P}{p}$$

$$\frac{\sin Q}{8} = \frac{\sin 10^\circ}{5}$$

$$\sin Q = \frac{8 \sin 10^\circ}{5}$$

$$\sin Q \approx 0.2778$$

$$Q_1 \approx 16^\circ$$

$$Q_2 \approx 164^\circ$$

$$Q \approx 16^\circ \text{ or } 164^\circ$$

2. For
- $\triangle KMN$
- ,
- $k=10$
- ,
- $m=9$
- and
- $n=12$
- , determine the value of
- $\angle N$
- .

$$\cos N = \frac{10^2 + 9^2 - 12^2}{2(10)(9)}$$

$$\cos N = \frac{37}{180}$$

$$\cos N \approx 0.2055$$


$$N \approx 78^\circ$$


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PART A: No Calculator allowed for this part of the quiz.

When you finish part A, hand it in and get part B.

1. Complete each of the following tables. (2 marks)

Related Acute Angle $\beta$	Quadrant	Sketch	Principal Angle $\theta$
$40^\circ$	2		$140^\circ$

Related Acute Angle $\beta$	Quadrant	Sketch	Principal Angle $\theta$
$50^\circ$	3		$230^\circ$

2. The point
- $(-4, -4)$
- is on the terminal arm of an angle
- $\theta$
- in standard position.

a) Draw the triangle. (1 mark)

b) Find the exact values for  $\sin \theta$  and  $\cos \theta$  and  $\tan \theta$ . (4 marks)c) Calculate the related acute angle,  $\beta$ , and the principal angle,  $\theta$ . (2 marks)

$\sin \theta = \frac{-4}{\sqrt{4^2 + 4^2}} = \frac{-4}{\sqrt{32}} = \frac{-1}{\sqrt{2}}$   
 $\cos \theta = \frac{-4}{\sqrt{32}} = \frac{-1}{\sqrt{2}}$   
 $\tan \theta = \frac{-4}{-4} = 1$   
 $\beta = 45^\circ$   
 $\theta = 315^\circ$

3. Given
- $\sin A = \frac{-\sqrt{3}}{2}$
- . Find all values of
- $\angle A$
- , to the nearest degree if
- $0^\circ \leq A \leq 360^\circ$
- . Draw a diagram to support your answer. (3 marks)

$\beta = 60^\circ$   
 $\theta = 240^\circ$   
 OR  $\theta = 300^\circ$



4. Determine the exact value of the trig ratio
- $\cos 240^\circ$
- . Draw a diagram to support your answer. (3 marks)

$\cos 240^\circ = -\cos 60^\circ$   
 $= -\frac{1}{2}$

$\cos 240^\circ = -\cos 60^\circ$   
 $= -\frac{1}{2}$

