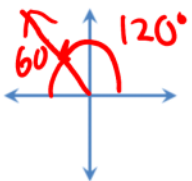
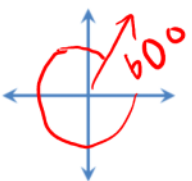

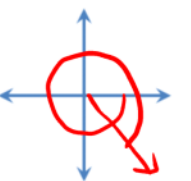

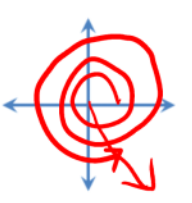
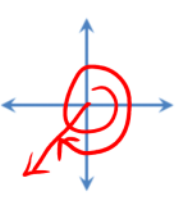
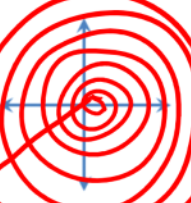


Name: _____

Date: _____

Pre-Calculus 11: HW 2.1 Angles in Standard Position

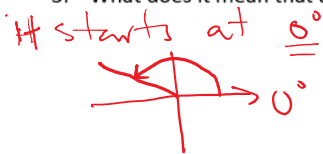
1. Draw each angle in standard position then find the value of the reference angle:

<p>a) 120°</p>  <p>Reference Angle: 60°</p>	<p>b) -300°</p>  <p>Reference Angle: 60°</p>	<p>c) 235°</p>  <p>Reference Angle: 55°</p>	<p>d) -420°</p>  <p>Reference Angle: 60°</p>
<p>e) 800°</p>  <p>Reference Angle: 80°</p>	<p>f) 1000°</p>  <p>Reference Angle: 80°</p>	<p>g) -500°</p>  <p>Reference Angle: 40°</p>	<p>h) -3000°</p>  <p>Reference Angle: 60°</p>

2. Given each pair of angles, indicate whether if they are co-terminal. Show your work to justify your answer:

<p>a) $35^\circ, 695^\circ$</p> <p>$695^\circ - 35^\circ = 660^\circ$ 660 is not a multiple of 360°, therefore this pair is not co-terminal.</p>	<p>b) $900^\circ, 330^\circ$</p> <p>$900^\circ - 330^\circ = 570^\circ$ 570 is not a multiple of 360°, therefore this pair is not co-terminal</p>	<p>c) $720^\circ, 1080^\circ$</p> <p>$1080^\circ - 720^\circ = 360^\circ$ 360 is a multiple of 360°, therefore this pair is co-terminal.</p>
<p>d) $-475^\circ, 605^\circ$</p> <p>$605^\circ - (-475^\circ) = 1080^\circ$ 1080 is a multiple of 360°, therefore this pair is co-terminal.</p>	<p>e) $-2590^\circ, 290^\circ$</p> <p>$290^\circ - (-2590^\circ) = 2880^\circ$ 2880 is a multiple of 360°, therefore this pair is co-terminal.</p>	<p>f) $1825^\circ, 375^\circ$</p> <p>$1825^\circ - 375^\circ = 1450^\circ$ 1450 is not a multiple of 360°, therefore this pair is not co-terminal</p>

3. What does it mean that an angle is in standard position? Explain:



4. What is the smallest positive co-terminal angle of 2000° ? Which quadrant is it in?

① $\frac{2000}{360} = \frac{200}{36}$ ② $360 \times 5 = 1800^\circ$
 $= \frac{50}{9} = 5\frac{5}{9}$ ③ subtract 5 rotations
 $3600 - 1800 = 200^\circ$

5. Give a general formula for all the co-terminal angles of -5200°

① $\theta = -5200 + 360(n)$; $n = 0, 1, 2, 3, \dots$ over
 ② $\frac{5200}{360} = \frac{130}{9} = 14\frac{4}{9}$ → spin it 15 rotations in positive direction
 → $-5200 + 5400 = 200$ ∴ $\theta = 200 + 360(n)$

6. Write a general formula for all co-terminal angles of a) 75° b) -200°

a) $\theta_1 = 75 + 360(n)$ b) $\theta_2 = 160 + n(360)$

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$$\begin{array}{r} 14 \\ 9 \overline{) 130} \\ \underline{9} \\ 40 \end{array}$$

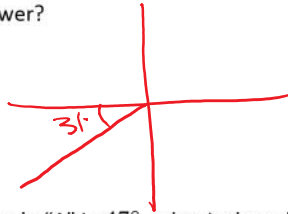
$$\begin{array}{r} 15 \times 360 \\ 3600 \\ \underline{1800} \\ 5400 \end{array}$$

$$\begin{array}{r} 1 \\ 3 \overline{) 391} \\ \underline{360} \\ 751 \end{array}$$

7. An angle in quadrant 3 has a reference angle of 31° . If the angle is greater than 600° , then what is the smallest possible answer?

1 $0 \rightarrow 1^\circ \rightarrow 1^\circ$

7. An angle in quadrant 3 has a reference angle of 31° . If the angle is greater than 600° , then what is the smallest possible answer?

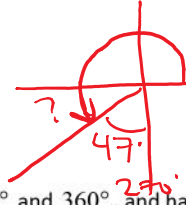
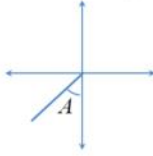


$$\theta_1 = 31^\circ + 360^\circ$$

$$= 391^\circ$$

$$\theta_2 = 391 + 360 = 751^\circ //$$

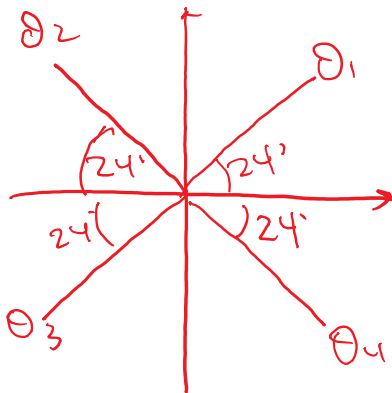
8. Given that angle "A" is 47° , what is the value of the angle in standard position?



$$\theta_1 = 270 - 47^\circ$$

$$\theta_1 = 223^\circ$$

9. Angle "x" is between 0° and 360° , and has a reference angle of 24° . What are all the possible values of angle "x"?



$$\theta_1 = 24^\circ$$

$$\theta_2 = 180 - 24^\circ$$

$$\theta_2 = 156^\circ$$

$$\theta_3 = 180 + 24^\circ$$

$$= 204^\circ //$$

$$\theta_4 = 360 - 24^\circ$$

$$\theta_4 = 336^\circ //$$