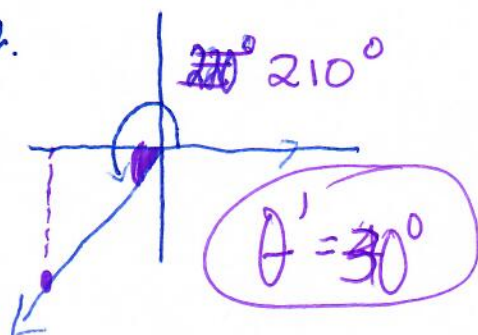


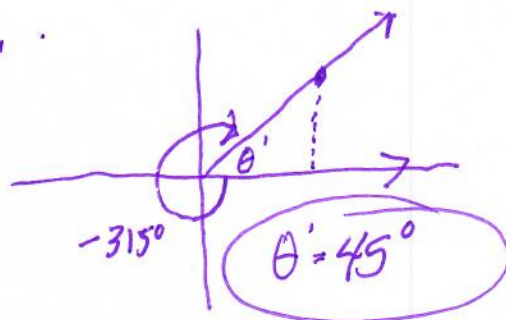
$$1. \quad \begin{aligned} 210 + 360 &= 570 \\ 210 - 360 &= -150 \end{aligned}$$

$$2. \quad \begin{aligned} -87 + 360 &= 273 \\ -87 - 360 &= -447 \end{aligned}$$

3. a.



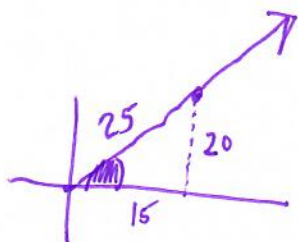
b.



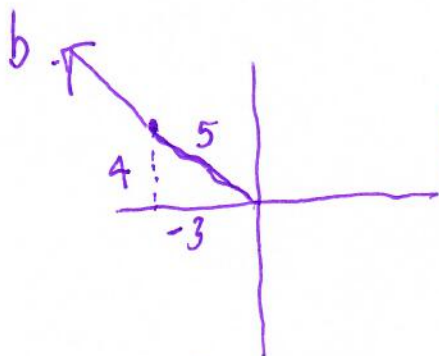
$$4a. \quad 220 \cdot \frac{\pi}{180} = \frac{11\pi}{9}$$

$$b. \quad -\frac{7\pi}{4} \cdot \frac{180}{\pi} = -315^\circ$$

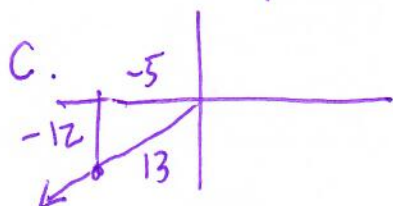
5. a.



$$\sin \theta = \frac{20}{25}$$



$$\cos \theta = -\frac{3}{5}$$

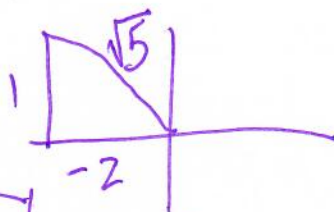


$$\tan \theta = \frac{-12}{-5} = \frac{12}{5}$$

6a. $\tan \theta = -\frac{1}{2}$

because quad 2 ... $x = -2$
 $y = 1$

$$\tan \theta = \frac{y}{x}$$



$$\boxed{\sin \theta = \frac{1}{\sqrt{5}} \text{ or } \frac{\sqrt{5}}{5}}$$

b. $\sin \theta = -\frac{6}{10}$

$$\sin \theta = \frac{y}{r} \text{ so } y = -6$$

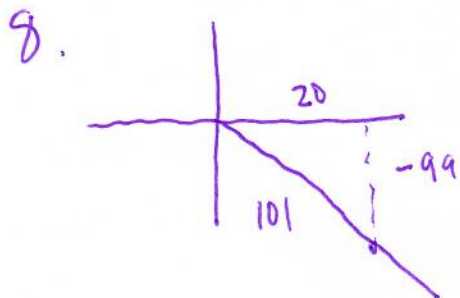
$$r = 10$$

$$\csc \theta = \frac{r}{y} \text{ so } -\frac{10}{6} = \csc \theta$$

7.	sin +	sin +
	cos -	cos +
	tan -	tan +
	sin -	sin -
	cos -	cos +
	tan +	tan -

a. 1, 2

b. 2, 4



$$\sin \theta = \frac{-99}{101}$$

$$\csc \theta = \frac{-101}{99}$$

$$\cos \theta = \frac{20}{101}$$

$$\sec \theta = \frac{101}{20}$$

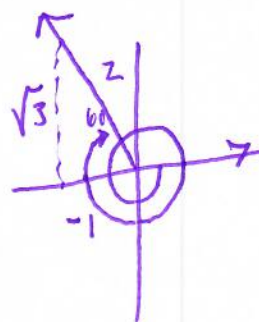
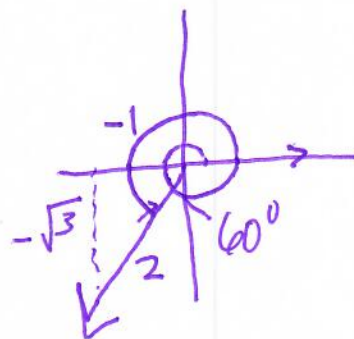
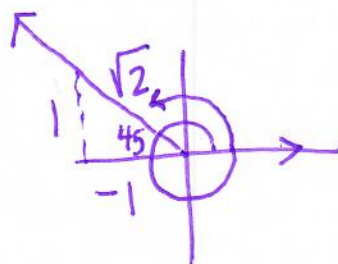
$$\tan \theta = \frac{-99}{20}$$

$$\cot \theta = -\frac{20}{99}$$

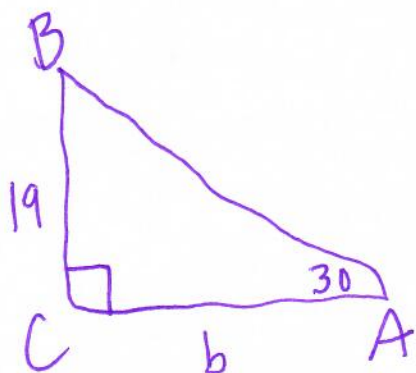
$$9. \sin 495 = \frac{1}{\sqrt{2}} \text{ or } \frac{\sqrt{2}}{2}$$

$$10. \cos 600 = -\frac{1}{2}$$

$$11. \tan -600 = -\sqrt{3}$$



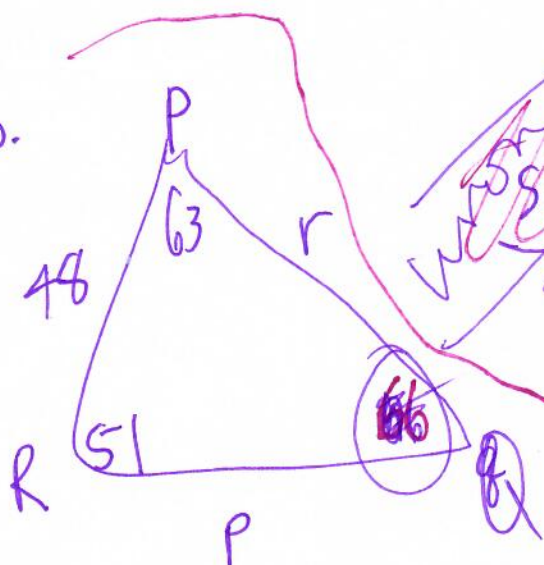
12.
a.



$$\tan 30 = \frac{19}{b}$$

$$b = \frac{19}{\tan 30} \approx 32.9$$

b.



$$\frac{5 \sin 96}{48} = \frac{\sin 51}{r}$$

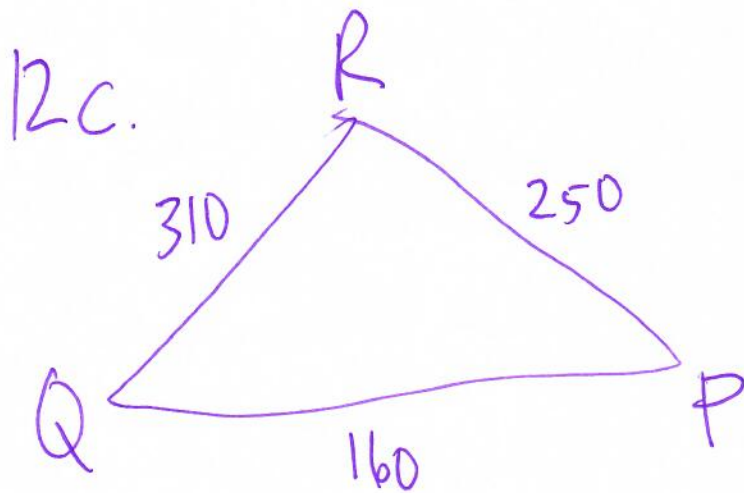
$$\frac{\sin 66}{48} = \frac{\sin 51}{r}$$

$$\frac{48 \sin 51}{\sin 66}$$

$$\frac{48 \sin 51}{\sin 96} \approx 31.51$$

$$40.8$$

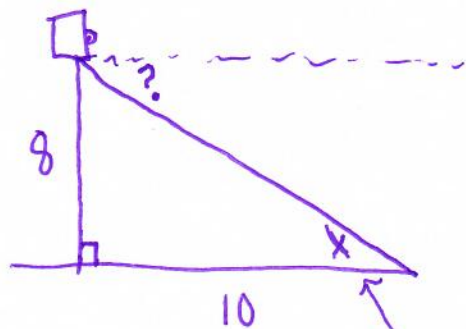
$$r = 31.51$$



$$250^2 = 310^2 + 160^2 - 2(310)(160)\cos Q$$

$$53.36$$

13.



$$\tan x = \frac{8}{10}$$

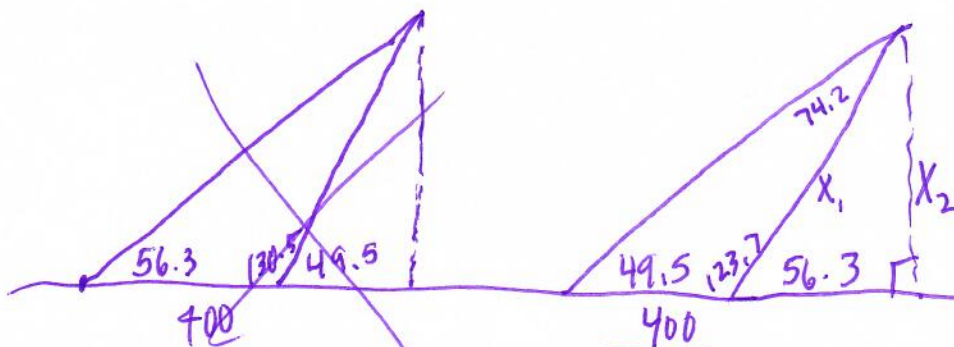
$$\tan^{-1} \frac{8}{10}$$

$$= 38.7^\circ$$

$$38.7$$

this angle is equal to the angle of depression

14.



$$\frac{\sin 74.2}{400} = \frac{\sin 49.5}{x_1}$$

$$x_1 = 316.1$$

$$\sin 56.3 = \frac{x_2}{316.1}$$

$$\text{Answer} = 262.99 \text{ ft}$$