What does the variable stand for?
Give an example of units that would correspond to the variable.

$s =$ arc length; linear distance mi

$t =$ time sec.

$\theta =$ angle; amount of rotation °

$r =$ radius; distance from center of rotation mi

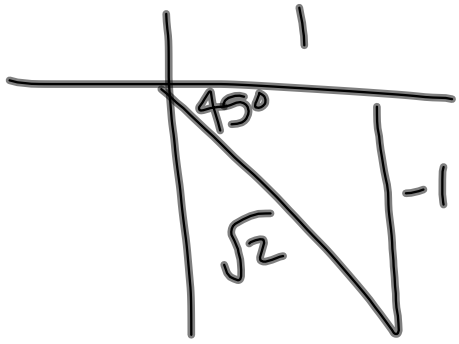
$v =$ linear speed $\left(\frac{\text{dist}}{\text{time}}\right)$ mi/h m/s

$\omega =$ angular speed $\left(\frac{\text{rotation}}{\text{time}}\right)$ rpm rotations/min

What are the 4 formulas we learned that relate these variables?

$v = \frac{s}{t}$; $\omega = \frac{\theta}{t}$; $s = r\theta$; $v = r\omega$

8. IV



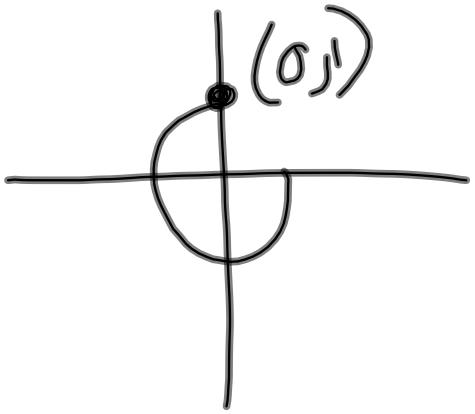
9. $45°$

10. $-\sqrt{2}$

11. $-405° \cdot \frac{\pi}{180°} = -\frac{9\pi}{4}$

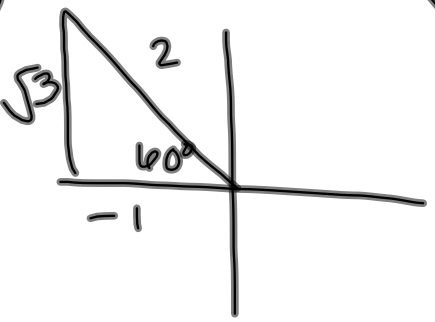
12. $\sec(-270°)$

undefined



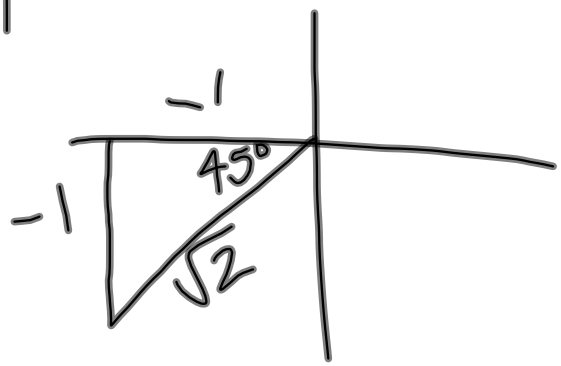
13. $\cot 120°$

$-\frac{1}{\sqrt{3}}$



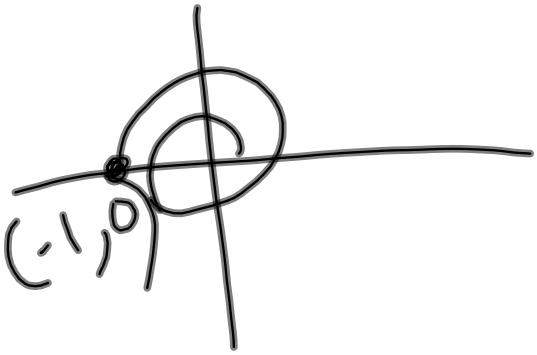
14. $\csc\left(-\frac{3\pi}{4}\right)$

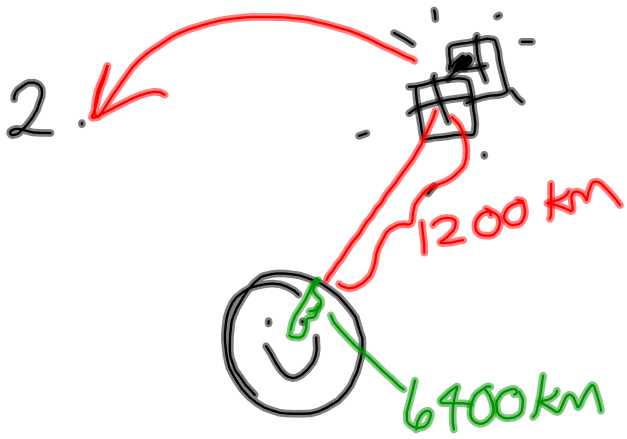
$-\sqrt{2}$



15. $\tan 3\pi$

0





$\omega = \frac{1 \text{ rev}}{90 \text{ min}}$

$V = ? \text{ km/min}$

$V = r\omega$

$r = 6400 + 1200$

$= 7600 \text{ km}$

$$V = \frac{7600 \text{ km}}{1} \cdot \frac{1 \text{ rev}}{90 \text{ min}} \cdot \frac{2\pi}{1 \text{ rev}} = \frac{1520\pi}{9} \frac{\text{km}}{\text{min}}$$

3. $\theta = ?$ rad

$t = 40$ min $\quad t \cdot \omega = \frac{\theta}{t} \cdot t$

$\omega = \frac{1\text{rot}}{h} \quad \theta = \omega t$

$$\theta = \frac{1\text{rot}}{h} \cdot \frac{40\text{min}}{1} \cdot \frac{1h}{60\text{min}} \cdot \frac{2\pi}{1\text{rot}}$$

$$= \frac{4\pi}{3}$$

$V = \frac{60 mi}{h}$; $r = 12 in$; $\omega = ?\ rev/min$

$\frac{V}{r} = \frac{r\omega}{r}$

$\omega = \frac{V}{r} = \frac{V}{1} \cdot \frac{1}{r}$

$= \frac{60 mi}{h} \cdot \frac{1}{12 in} \cdot \frac{1 h}{60 min} \cdot \frac{5280 ft}{1 mi} \cdot \frac{12 in}{1 ft} \cdot \frac{rev}{2\pi}$ (2640)

$= \boxed{\frac{2640}{\pi} \frac{rev}{min}}$