

64 teams

32, 16

$$r = \frac{1}{2}$$

$$a_n = a_1 \cdot r^{n-1}$$

$$a_n = 32 \cdot \left(\frac{1}{2}\right)^{n-1}$$

$$\sum_{i=0}^9 9 \left(\frac{3}{4}\right)^i$$

$$a_1 = 9 \cdot \left(\frac{3}{4}\right)^0 = 9$$

$$n = 9 - 0 + 1 = 10$$

$$7) \sum_{h=1}^{\infty} 8 \left(\frac{1}{5}\right)^{h-1}$$

$8 \left(\frac{1}{5}\right)^0 = 8$

$$\begin{aligned} S_n &= \frac{a_1 - a_n \cdot r}{1 - r} \\ &= \frac{32 - 1 \cdot \frac{1}{2}}{1 - \frac{1}{2}} \\ &= \frac{\frac{63}{2}}{\frac{1}{2}} = 63 \end{aligned}$$

$$\begin{aligned} S_n &= \frac{a_1 - a_1 \cdot r^n}{1 - r} \\ &= \frac{9 - 9 \cdot \left(\frac{3}{4}\right)^{10}}{1 - \frac{3}{4}} \end{aligned}$$

$$\begin{aligned} S &= \frac{a_1}{1 - r} = \frac{8}{1 - \frac{1}{5}} = \frac{8}{\frac{4}{5}} \\ &= \frac{8 \cdot 5}{4} = 10 \end{aligned}$$

$$\underline{15} \quad \begin{array}{c} 80, 48 \\ \hline 0.6 \\ r = 0.6 \end{array}$$

$$\begin{aligned} S &= \frac{a_1 - a_1 \cdot r^n}{1 - r} \\ &= \frac{80 - 80 \cdot (0.6)^6}{1 - 0.6} \approx 190.7 \text{ ft.} \end{aligned}$$

$$90, 60, 40, \dots \infty \quad r = \frac{60}{90} = \frac{2}{3}$$

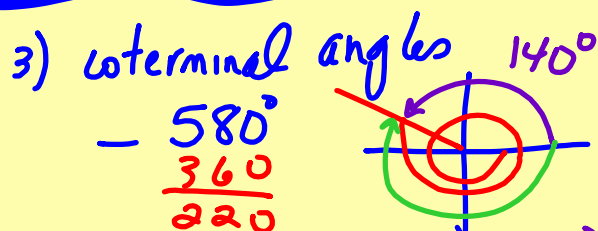
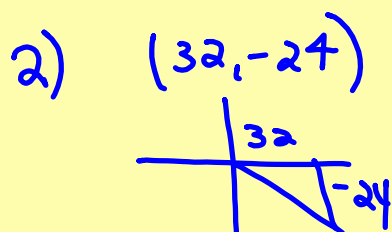
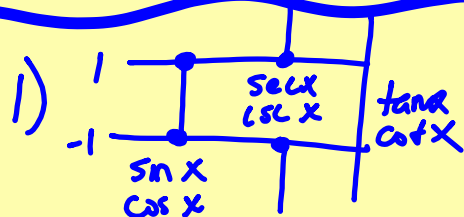
Converge

$$S = \frac{a_1}{1-r} = \frac{90}{1-\frac{2}{3}} = 270$$

$$\frac{1}{4}, 1, 4, 16, \dots$$

$r = 4$

SEMESTER REVIEW



4) $\frac{S}{T} \mid \frac{A}{C}$

5) Draw a picture
Use stick your rotten....


6) Convert to rads.


$$200^\circ \cdot \frac{\pi}{180^\circ} = \frac{200}{180} \pi = \frac{10\pi}{9}$$

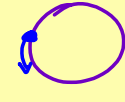
Convert rads to deg

$$\frac{5\pi}{8} \cdot \frac{180^\circ}{\pi} = \frac{900}{8} = \frac{450}{4} = \frac{225}{2} = 112.5^\circ$$

Arc Length
 $s = r\theta$

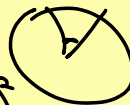
Area of sector

 $A = \frac{1}{2}\theta r^2$


Angular Velocity

 $\omega = \frac{\theta}{t}$

Linear Velocity

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

All in radians!


Pizza - 8 pieces
 12 in. pizza
 What is area of each slice?
 $A = \frac{1}{2}\theta r^2$
 $A = \frac{1}{2}(\frac{2\pi}{8}) \cdot (6)^2$
 $A = 14.1 \text{ in}^2$



Oreo 3 Kids

 $s = r\theta$
 $= (0.85) \cdot \frac{2\pi}{3}$
 $= 1.78 \text{ in}$

Disco ball motor
 3 rev/min
 What is angular velocity
 $\omega = \frac{\theta}{t} = \frac{3 \cdot 2\pi}{60 \text{ sec}} = \frac{6\pi}{60}$
 $= \frac{\pi}{10} \text{ rad/sec}$
 1 rev = 2π

Disco ball spin
 35 rev/min
 How fast is outside edge spinning per sec.
 2 ft. diameter.
 $v = \frac{r \cdot \theta}{t}$
 $v = \frac{1 \text{ ft} \cdot 35 \cdot 2\pi}{60 \text{ sec.}}$
 $= 3.67 \frac{\text{ft}}{\text{sec}}$

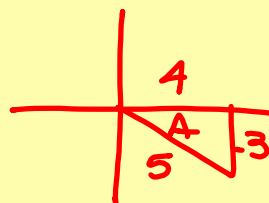
11.

 How tall is tower?
 $\tan 36^\circ = \frac{x}{81}$ $\tan 28^\circ = \frac{y}{81}$

12/ Special angle values!

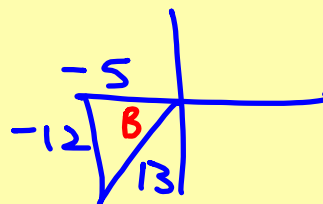
13-15 Identities

13. Verify - Watch for $2x + \frac{x}{2}$.

Given $\tan A = \frac{-3}{4}$ \uparrow II $\text{ and } \csc B = \frac{-13}{12}$ \uparrow III.



Find $\cos(A-B)$



$$\cos(A-B) = \cos A \cos B + \sin A \sin B$$

$$\left(\frac{4}{5}\right)\left(-\frac{5}{13}\right) + \left(-\frac{3}{5}\right)\left(-\frac{12}{13}\right)$$

$$\frac{-20}{65} + \frac{36}{65} = \frac{16}{65}$$