



## Advanced Math

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49) 1.525

50) -0.842

52) .009

54) 6.021

56) 81.818°

58) 1170°

60) 275.020°

62) -32.659°

64a) 245.167°

b) 2.2°

66a) -135.01°

b) -408.272°

68a) -345° 7' 12"

b) 25° 46' 59"

70a) -20° 20' 24"

b) 45° 3' 47"

72)  $\theta = \frac{s}{r} = \frac{31}{12} = 2.58\bar{3}$

74)  $-\frac{60}{75} = -\frac{4}{5}$

76)  $\frac{10}{16} = \frac{5}{8} = 0.625$

78)  $\frac{180}{90} = 2$

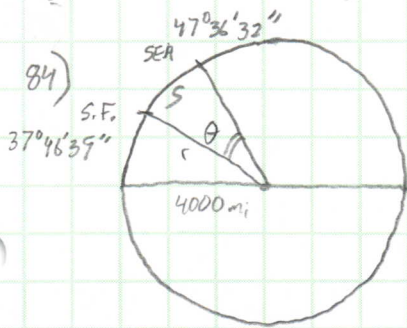
80)  $\theta = \frac{s}{r}$   $60^\circ = \frac{\pi}{3}$

$\frac{\pi}{3} = \frac{s}{9}$

$\frac{9\pi}{3} = s = 3\pi = 9.425 \text{ Ft}$

82)  $30\pi \text{ cm} = 94.248 \text{ cm}$

86) 4045.7 mi



$\theta = 47^\circ 36' 32'' - 37^\circ 46' 39''$

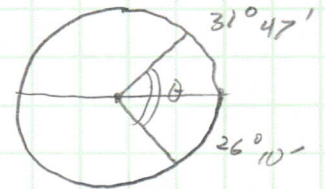
$\theta = 9^\circ 49' 53'' = 9.83138^\circ$

$\theta = .1715901062 \text{ (radians)}$

$\theta = \frac{s}{r}$

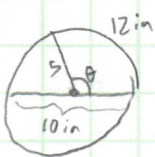
$.17159 = \frac{s}{4000}$

84)  $s = 686,360 \text{ mi}$



$\theta = 57^\circ 57' = 1.0114$

90)



$\theta = \frac{12}{5} = 2.4 = 137.510^\circ$

92)



$\frac{1700 \text{ rev}}{\text{min}}$

ratio of circumference  
1:2 so 1/2 turn  
of small is 1/2 turn  
on big

a)  $\frac{1700 \text{ rev}}{\text{min}} \times \frac{2\pi}{1 \text{ rev}} = \frac{3400\pi}{\text{min}}$

b)

$\frac{850 \text{ rev}}{\text{min}}$

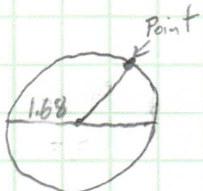
or

$\frac{850 \text{ rev}}{\text{min}} \times \frac{2\pi}{1 \text{ rev}} =$

93) radian, 360° in a circle  
6.28... rad in a circle

94) It gets larger proportional to the  
new increased radius

95)



$\frac{360 \text{ rev}}{\text{min}} \times \frac{3.36\pi \text{ in}}{1 \text{ rev}} = \frac{3800.070 \text{ in}}{\text{min}}$  or

$\frac{3800.070 \text{ in}}{\text{min}} \times \frac{1 \text{ min}}{60 \text{ sec}} = \frac{63.335 \text{ in}}{\text{sec}}$  or

$C = 2\pi r = 2(1.68)\pi$   
 $\frac{3800.070 \text{ in}}{\text{min}} \times \frac{1 \text{ Ft}}{12 \text{ in}} \times \frac{60 \text{ min}}{\text{hr}} \times \frac{1 \text{ mi}}{5280 \text{ Ft}} = \frac{3.599 \text{ mi}}{\text{hr}}$

96) Since gear ratio is 2:1,  
wheel is turning at  $\frac{2 \text{ rev}}{\text{sec}}$   $C = \pi d = 14\pi \text{ in}$

a)  $\frac{2 \text{ rev}}{\text{sec}} \times \frac{28\pi \text{ in}}{1 \text{ rev}} \times \frac{\text{Ft}}{12 \text{ in}} = \frac{14\pi}{3} = \frac{14.661 \text{ Ft}}{\text{sec}}$

b)  $\frac{14\pi \text{ Ft}}{3 \text{ sec}} \times \frac{1 \text{ mi}}{5280 \text{ Ft}} \times \frac{3600 \text{ sec}}{1 \text{ hr}} = \frac{9.996 \text{ mi}}{\text{hr}}$