

AK 50-60 on Linear/Angular Speed Extra Practice

Skip 46-49

50 320°

51 250°

52 340°

53 320°

54 $\frac{17\pi}{9}$

55 $\frac{4\pi}{3}$

56 $\frac{\pi}{6}$

57 $\frac{8\pi}{9}$

58 $\frac{60 \text{ mi}}{1 \text{ hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} \cdot \frac{2\pi \text{ rads}}{32\pi \text{ in}} = 3960 \frac{\text{rads}}{\text{min}}$

$\frac{3960 \text{ rads}}{1 \text{ min}} \cdot \frac{1 \text{ rev}}{2\pi \text{ rads}} = 630.57 \frac{\text{rev}}{\text{min}}$

59 $\frac{15 \text{ miles}}{1 \text{ hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ mile}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} \cdot \frac{2\pi \text{ rads}}{24\pi \text{ in}} = 79200 \frac{\text{rads}}{\text{hr}}$

$\frac{79200 \text{ rads}}{\text{hr}} \cdot \frac{1 \text{ rev}}{2\pi \text{ rads}} \cdot \frac{1 \text{ hr}}{60 \text{ min}} = 210.2 \frac{\text{rev}}{\text{min}}$

60 $\frac{15 \text{ Deg}}{1 \text{ sec}} \cdot \frac{16\pi \text{ in}}{360 \text{ Deg}} = 2.09 \frac{\text{in}}{\text{sec}}$ Linear Speed

$\frac{15 \text{ Deg}}{1 \text{ sec}} \cdot \frac{60 \text{ sec}}{1 \text{ min}} \cdot \frac{1 \text{ Rev}}{360 \text{ Deg}} = 2.5 \text{ Rev/min (RPM)}$

$\frac{2.5 \text{ Rev}}{1 \text{ min}} \cdot \frac{2\pi \text{ Rads}}{1 \text{ Rev}} \cdot \frac{1 \text{ min}}{60 \text{ sec}} = .083\pi \frac{\text{rads}}{\text{sec}}$