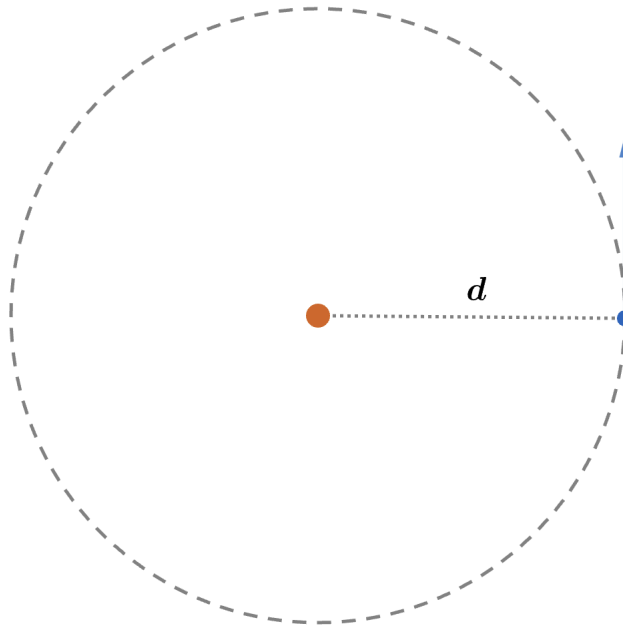


2011 F=ma Exam: Problem 5

Kevin S. Huang



We know the period T of the Earth's rotation around the sun is 1 year. Assuming the Earth travels in uniform circular motion, we have

$$a_c = \omega^2 d = \left(\frac{2\pi}{T}\right)^2 d$$
$$= \left(\frac{2\pi}{1 \text{ yr} \times 365 \text{ days/year} \times 24 \text{ hr/day} \times 3600 \text{ s/hr}}\right)^2 (1.50 \times 10^{11} \text{ m}) \approx 0.006 \text{ m/s}^2$$

so the answer is B.