

CHECKPOINT 4

Vectors \vec{C} and \vec{D} have magnitudes of 3 units and 4 units, respectively. What is the angle between the directions of \vec{C} and \vec{D} if $\vec{C} \cdot \vec{D}$ equals (a) zero, (b) 12 units, and (c) -12 units?

10 Figure 3-25 shows vector \vec{A} and four other vectors that have the same magnitude but differ in orientation. (a) Which of those other four vectors have the same dot product with \vec{A} ? (b) Which have a negative dot product with \vec{A} ?

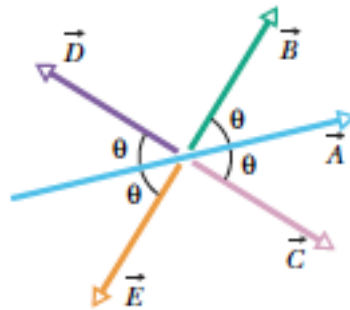


Fig. 3-25 Question 10.

5 Figure 13-24 shows three situations involving a point particle P with mass m and a spherical shell with a uniformly distributed mass M . The radii of the shells are given. Rank the situations according to the magnitude of the gravitational force on particle P due to the shell, greatest first.

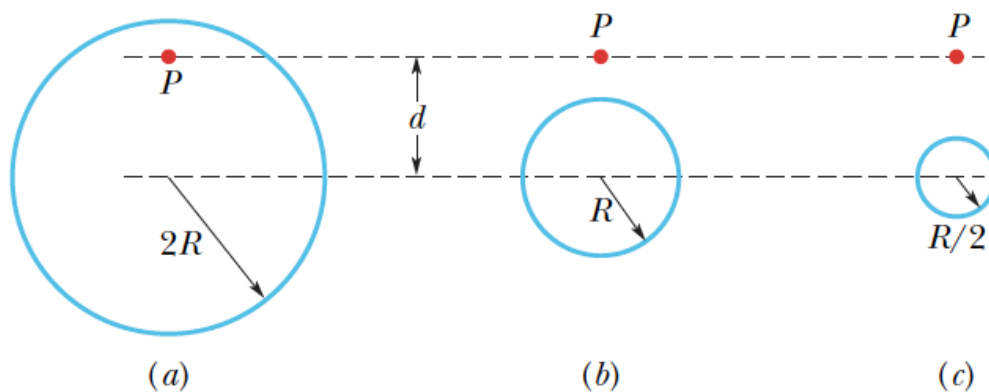


Fig. 13-24 Question 5.

Rank the situations according to the magnitude of the gravitational force on particle P due to the shell, greatest first.