# PHYS 206 – Spring 2019 – Exam I

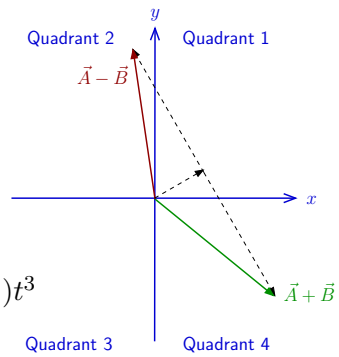
## All *University Physics* Sections

**Short Answer:** A) a) Quandrant 4 [LO 1.1, 2.1]

b) Quandrant 2 [LO 1.2, 2.2]

c) 0 [LO 2.3]

d) $-10\hat{k}$ [LO 2.4, 2.5]



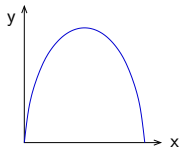

B) a) $a_1 = 14$ m/s$^2$ [LO 11.1]

b) $a_2 = 0$ [LO 11.2]

c) $a(t) = (12 \text{ m/s}^3)t - 10 \text{ m/s}^2$ [LO 8.1, 12.1, 14.1]

d) $x(t) = (-5 \text{ m/s}^2)t^2 + (2 \text{ m/s}^3)t^3$ [LO 8.2, 12.2, 14.2]

C) a) [LO 9.1, 14.3]

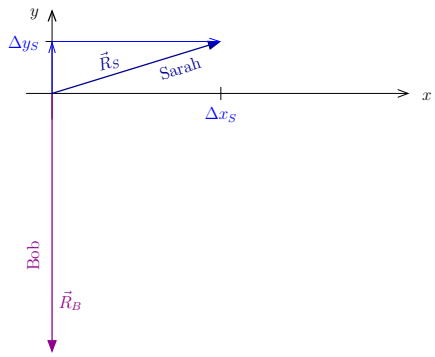



b) $h = 15$ m [LO 1.3, 13.1, 14.4]

c) $\vec{a} = -\frac{5}{3}\hat{j}$ m/s$^2$ [LO 13.2, 15.1, 18.1]

d) $\vec{v} = \frac{10}{\sqrt{2}}\hat{i}$ m/s [LO 12.3, 13.3]

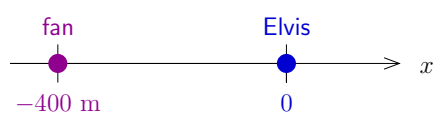
**Problem 1:** a) [LO 9.2]




b) $\vec{R}_S = (30 \text{ m})\hat{i} + (10 \text{ m})\hat{j}$ and $\vec{R}_B = (-50 \text{ m})\hat{j}$ [LO 1.4, 6.1, 11.3]

c) $v_B = 10.8$ km/h [LO 2.6, 5.1, 6.2, 10.1]

**Problem 2:** a) [LO 9.2]




b) $t = 2.5$ s [LO 3.1, 8.3, 12.4]

c) $t = 7.5$ s [LO 3.2, 6.3]

d) $t = 20$ s [LO 3.3, 5.2, 6.4, 14.5]

e) $\Delta x = 2400$ ft (Elvis), or $\Delta x = 3600$ ft (fan) [LO 6.5, 10.2, 14.6]

**Problem 3:** a) $a_{\text{rad}} = \frac{18}{7}$ m/s$^2$ upward [LO 10.3, 15.2, 17.1, 18.2, 19.1]

b) $a_{\text{rad}} = \frac{18}{7}$ m/s$^2$ downward [LO 10.4, 15.3, 17.2, 18.3, 19.2]

c) $t = 14$ s [LO 3.4, 6.6, 10.5, 19.3]