Even Answers Chapter 8

8.1:

8) no such triangle exists

10)
$b = 60.8,$ 32.9
$\beta = 92^\circ 19'$ $32^\circ 41'$
$\gamma = 60^\circ 11'$ $119^\circ 49'$

12)
$c = 7.40$ 1.67
$\beta = 55.09^\circ$ 124.91°
$\gamma = 82.74^\circ$ 12.92°

16)
$b = 16.7$
$\alpha = 54.88^\circ$
$\beta = 73.01^\circ$

24) 576.7 yards

28) a) 836.2 feet b) 5468.4 feet

8.2:

12)
$\alpha = 41^\circ 39'$
$\beta = 85^\circ 29'$
$\gamma = 72^\circ 52'$

20) 149.9 miles

22) 271.7 feet

24) 60.05°

28) a) 74.9 miles b) N 61.9° E

8.3:

2)
$a + b = \langle 0, 9 \rangle$
$a - b = \langle -4, 3 \rangle$
$4a + 5b = \langle 2, 39 \rangle$
$4a - 5b = \langle -18, 9 \rangle$
$\|a\| = 2\sqrt{10}$

8) These are drawings of vectors, which cannot be shown here.

12) -3**d**

14) **e**

16) 2**f**

30) $\|a\| = 4 \qquad \theta = \frac{4\pi}{3}$

38) 10.1 lb.

46) horizontal: 15.32, vertical 12.86

58) a) $\langle 0,0 \rangle$ b) No additional force is necessary to reach equilibrium.

64) a) ground speed: 508.6 mph b) heading 136.73°

66) a) wind speed: 75.4 mph b) heading: 73.7°

68) current speed: 7.8 mph

8.4:

2) a) -29 b) 176.1° or $176^{\circ}3'$

10) Steps must be shown to show vectors are orthogonal

12) Steps must be shown to show vectors are orthogonal

14) **a** and **b** have the same direction

16) **a** and **b** have opposite direction

18) $m = \pm\frac{5}{6}$

20) $m = -\frac{21}{10}$