Homework 14 Math 48C Mitchell Schoenbrun
9.3 P. 597 #46, 47, 48, 53

46)

$$\langle 11-2,13-5\rangle \cdot \langle 11,13\rangle = \langle 9,8\rangle \cdot \langle 11,13\rangle = 9\cdot 11+8\cdot 13 = 99+104 = 203\, ft-lbs$$

47)

$$200\, ft \cdot 50 lbs.\cos\left(30^\circ\right) = 8660\, ft-lbs$$

48)

$$2500 lb \cdot 500\, ft \cdot \cos\left(90^\circ+12^\circ\right) = 260,000\, ft-lbs.$$

53)

Force of gravity down hill

$$F_g = 40 lbs \cdot \sin\left(15^\circ\right)$$

Work done pulling at 45° above the 15° angle.

$$F_g \cos\left(45^\circ\right) = 40\sin\left(15^\circ\right)\cos\left(45^\circ\right) = 7.32 lbs$$