Lesson 8 Worksheet

1. A hot air balloon is accelerating with a net force of 1000N [up]. If we know that the gravitational force acting on the balloon is 3000N [down], determine the applied force by the burner (flame). Identify up as the positive direction.

$$F_{NET} = F_a + F_g$$
$$F_{NET} - F_g = F_a$$
$$F_a = F_{NET} - F_g = 1000N - (-3000N) + 4000N$$
$$F_a = 4000N[up]$$

2. Three confused sleigh dogs are trying to pull a sled across the Alaskan snow. Alutia pulls west with a force of 35 N, Seward pulls east with a force of 42 N, and big Kodiak pulls west with a force of 53 N. What is the net force on the sled? Identify east as the positive direction.

$$F_{NET} = F_{Alutia} + F_{Seward} + F_{Kodiak}$$
$$F_{NET} = (-35N) + 42N + (-53N) = -46N$$
$$F_{NET} = 46N[West]$$