

Horsepower Worksheet

Name

Key

Solve the following using the horsepower formula. Show work and use appropriate units.

1. How much horsepower is needed for an engine to lift ^w800 lbs a distance of ^d3000 ft in one minute?

$$HP = \frac{d \cdot w}{33000}$$

$$HP = \frac{3000(800)}{33000} = 73 \text{ hp}$$

2. For a small engine to lift ^w600 lbs a distance of ^d100 ft in one minute, how much horsepower would be needed?

$$HP = \frac{100(600)}{33000}$$

$$HP = 1.8 \text{ hp}$$

3. For an engine that has 125 hp, solve for the distance if the weight is 5000 lbs.

$$125 = \frac{d \cdot 5000}{33000}$$

$$\frac{4125000}{5000} = \frac{5000d}{5000}$$

$$d = 825 \text{ ft}$$

4. How much horsepower is needed for an engine to lift ^w2000 lbs a distance of ^d1500 ft in one minute?

$$HP = \frac{1500(2000)}{33000}$$

$$HP = 91 \text{ hp}$$

5. For an engine that has 50 hp, solve for the weight if the distance is 2500 ft.

$$50 = \frac{2500 w}{33000}$$

$$\frac{1650000}{2500} = \frac{2500 w}{2500}$$

$$w = 660 \text{ lbs}$$

6. For an engine that has 250 hp, solve for the weight if the distance is 300 ft.

$$250 = \frac{300 W}{33000}$$

$$\frac{8250000}{300} = \frac{300 W}{300}$$

$$W = 27500 \text{ lbs}$$

7. How much horsepower is needed for an engine to lift 250 lbs a distance of 800 ft in one minute?

$$HP = \frac{(800)(250)}{33000}$$

$$HP = 6.1 \text{ hp}$$

8. For a small engine to lift 825^W lbs a distance of 100^d ft in one minute, how much horsepower would be needed?

$$HP = \frac{(100)(825)}{33000}$$

$$HP = 2.5 \text{ hp}$$

9. For an engine that has 350 hp, solve for the distance if the weight is 3750 lbs.

$$350 = \frac{d \cdot 3750}{33000}$$

$$\frac{11550000}{3750} = \frac{3750 d}{3750}$$

$$d = 3080 \text{ ft}$$

10. For an engine that has 55 hp, solve for the distance if the weight is 600 lbs.

$$55 = \frac{d \cdot 600}{33000}$$

$$\frac{1815000}{600} = \frac{600 d}{600}$$

$$d = 3025 \text{ ft}$$