

Horsepower Quiz

Name

Key

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

1. For a small engine to lift ^W725 lbs a distance of ^d250 ft in one minute, how much horsepower would be needed?

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

$$HP = \frac{250(725)}{33000} = \boxed{5.5 \text{ hp}}$$

2. How much horsepower is needed for an engine to lift ^W2500 lbs a distance of ^d425 ft in one minute?

$$HP = \frac{(425)(2500)}{33000} = \boxed{32 \text{ hp}}$$

3. For an engine that has ^{HP}35 hp, solve for the ^ddistance if the weight is ^W3000 lbs.

$$35 = \frac{d \cdot 3000}{33000}$$

$$\frac{1155000}{3000} = \frac{3000d}{3000}$$

$$\boxed{d = 385 \text{ ft}}$$

4. For an engine that has ^{hp}450 hp, solve for the ^ddistance if the weight is ^W3750 lbs.

$$450 = \frac{d \cdot 3750}{33000}$$

$$\frac{14850000}{3750} = \frac{3750d}{3750}$$

$$\boxed{d = 3960 \text{ ft}}$$

5. For an engine that has ^{hp}500 hp, solve for the ^Wweight if the distance is ^d25000 ft.

$$500 = \frac{25000 W}{33000}$$

$$\frac{16500000}{25000} = \frac{25000 W}{25000}$$

$$\boxed{W = 660 \text{ lbs}}$$

6. For an engine that has ^{hp}80 hp, solve for the ^Wweight if the distance is ^d1500 ft.

$$80 = \frac{1500 \cdot W}{33000}$$

$$\frac{2640000}{1500} = \frac{1500 W}{1500}$$

$$\boxed{W = 1760 \text{ lbs}}$$