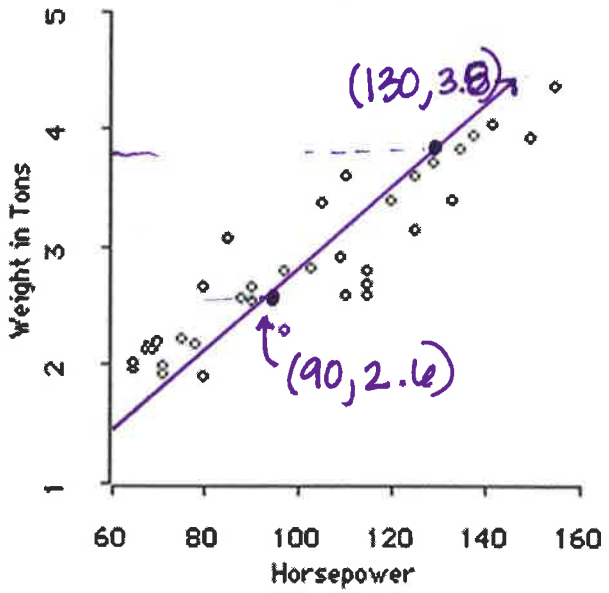
3-5 & 3-6 Additional Practice

Scatter Plots and Trend Lines

Name: Key

The following graph is based on a survey of car engines. The graph relates the horsepower of a car's engine to the weight (in tons) of the engine.



1) **Draw a trend line for the data**

2) **Identify 2 coordinate points on or near the trend line and write a linear equation**

(130, 3.8) & (90, 2.6)

$m = \frac{3.8-2.6}{130-90} = \frac{1.2}{40} = 0.03$

$y - 3.8 = 0.03(x - 130)$

3) **Describe the type of correlation that the data appears to have.**

Positive correlation

4) **What does the slope of the trend line represent in this scenario?**

m = 0.03, as the weight of the car increases, the horsepower increases. For every 1.2 lbs, the car gains 40 horsepower

5) **Use your trend line to interpolate calculate the weight of a motor with 130 horsepower.** $x = 130$

$y - 3.8 = 0.03(130 - 130)$

$y = -3.8 = 0.03(0)$ $y = 3.8$

3.8 tons

6) **Use your trend line to extrapolate the weight of a motor with 350 horsepower.** $x = 350$

$y - 3.8 = 0.03(350 - 130)$

$y - 3.8 = 6.6$ $y = 10.4$

10.4 tons

Describe the type of correlation indicated by each correlation coefficient.

7) $r = 0.875$ Strong positive

8) $r = -0.976$ Strong negative

9) $r = 0.043$ Weak correlation