Task. A long distance phone company has a monthly fee of $7.95 and charges a rate of $0.05 per minute. Another long distance company has a monthly fee of $9.95 and charges a rate of $0.03 per minute. At how many minutes would the two companies have equal charges?

Solution. The price of the first company for x minutes is given by the formula:

$$P_1(x) = 7.95 + 0.05x,$$

and the price of the second company for x minutes is

$$P_2(x) = 9.95 + 0.03x.$$

We should find an x such that

$$P_1(x) = P_2(x).$$

Thus

$$7.95 + 0.05x = 9.95 + 0.03x,$$
$$0.05x - 0.03x = 9.95 - 7.95,$$
$$0.02x = 2,$$
$$x = \frac{2}{0.02} = 100 \text{ minutes.}$$

Answer. 100 minutes.