1. Annual revenue R from McDonald's restaurants worldwide can be estimated by

$$R = 19.0 + 2.0t$$

where R is in billion dollars and t is in years since January 1, 2015.

(a) What is the slope of the revenue function? Include units. Interpret the slope in terms of McDonald's' Revenue.

The slope is 2.0 billion dollars per year

McDonald's revenue is increasing at a rate of 2.0 billion dollars a year.

(b) What is the vertical intercept of this function? Include units. Interpret the vertical intercept in terms of McDonald's revenue.

19.0 billion dollars

In 2015, the revenue is 19 billion dollars

(c) What annual revenue does the function predict for 2020?

Plug in $t = 5$

$$R(5) = 19.0 + 2 \cdot 5 = 29 \text{ Billion dollars}$$

(d) When does the annual revenue hit 35 billion?

Substitute $R = 35$ and solve for t

$$35 = 19 + 2t$$
$$16 = 2t \Rightarrow t = 8, \quad \text{In 2023 the revenue hits 35 billion.}$$

(e) Suppose instead, the annual revenue on January 1, 2015 is \$23.5 and grows at a rate of \$3.2 billion per year. Write down a function that describes the revenue over time t in years since January 1, 2015.

$$R(t) = \cancel{\$2} \, 23.5 + 3.2t$$