Answer on Question #59767 – Math – Algebra

Question

A satellite connection provides the community in timbuktu with a download speed of up to 1.0 Mbps and an upload speed of up to 512 kbps.

How much time (in minutes) will it take to

a. download
b. upload

a 3.2 MB photograph?

Answers to 3 significant figures please.

Solution

a. Download time is $t = \dfrac{3.2\ MB}{1.0\ Mbps} = \dfrac{3.2\ MB \cdot 8}{1.0\ MB/sec} = 25.6\ sec = \dfrac{25.6}{60} min =$
$= 0.427\ min$, because
$1\ Mbps = \dfrac{1}{8}\dfrac{MB}{sec} = 0.125\ MB/sec,\ 1\ sec = \dfrac{1}{60}\ min.$

b. Upload time is $t = \dfrac{3.2\ MB}{512\ kbps} = \dfrac{3.2\ MB \cdot 8}{0.512\ MB/sec} = 50\ sec = \dfrac{50}{60} min = 0.833\ min,$
because
$1\ kbps = 0.001\ Mbps,\ 1\ Mbps = \dfrac{1}{8}\dfrac{MB}{sec} = 0.125\ MB/sec,\ 1\ sec = \dfrac{1}{60}\ min.$

Answer: a. 0.427 min; **b.** 0.833 min.