Generally, if you are given three numbers and asked to find the fourth, you can use a proportion to find the missing number.

1) Your take home pay is $415 after working 8 days at a part-time job. If earnings stay the same, what will be your total take home pay for working 20 days?

pay → $\frac{415}{8} = \frac{x}{20}$ (×5 ×20)

days →

$415 \times 5 = 2075$

$\frac{2075}{2} = x$

$1037.5 = x$

$2\overline{)2075.0}$ → 1037.5

-2 → 07

-6 → 15

-14 → 10

-10 → 0

$\$1037.50 = x$

2) If your cell phone is not set to prevent this, "...apps tweak their settings based on connection quality. Sites like YouTube will pick higher resolutions when they find a fast 4G connection..." You can use 0.09 GB in 15 minutes. At this rate, how many minutes of video could you watch with an allowance of 1 GB. (Round down to the nearest minute, to avoid going over 1 GB.) (*Source:* http://blogs.wsj.com/digits/2013/08/01/how-much-smartphone-data-do-you-really-need)

15x LCD

GB → / minutes →

15x 15x

$\frac{.09}{15} = \frac{1}{x}$

$\frac{.09x}{.09} = \frac{15}{.09}$

$x = 166$ minutes

166.
.09|1500
-9
60
-54
60
-54
6

3) The next lower resolution allows 14 minutes of viewing for 0.05 GB of data. At this rate how many minutes of video could you watch with an allowance of 0.5 GB?

minutes → / GB →

.5 .5

$\frac{14}{.05} = \frac{x}{.5}$

$\frac{7}{.05} = x$

$140 = x$ minutes

14
×.5
7.0

140.
.05|700
-5
20
-20
00

4) In 2013, 46 NCAA male student athletes were drafted to professional basketball teams. That is out of almost 18,000 college basketball players. If there are 600 college basketball players in a particular state, how many of them are likely to get drafted to a pro team? (Write as a mixed number, then round to the nearest whole number.) (*Source:* http://www.ncaa.org/sites/default/files/Probability-of-going-pro-methodology_Update2013.pdf)

$$\frac{\text{drafted}}{\text{players}} \rightarrow \frac{46}{18{,}000} = \frac{x}{600}$$

$$\frac{23}{15} = x$$

$$1\frac{8}{15} = x$$

$$2 \approx x$$

drafted

5) A recipe for 5 dozen chocolate chip cookies calls for $2\frac{1}{4}$ cups all-purpose flour. If I only want to make 3 dozen cookies, how much flour should I use. (Give an exact mixed number.)

dozen cookies →
cups flour →

$$\frac{5}{2\frac{1}{4}} = \frac{3}{x}$$

$\frac{5}{1} \cdot \frac{4}{9} = \frac{20}{9}$

9x LCD

$$\frac{20}{9} = \frac{3}{x}$$

$$\frac{20x}{20} = \frac{27}{20}$$

$x = 1\frac{7}{20}$ cups

---

cups flour →
dozen cookies →

$$\frac{2\frac{1}{4}}{5} = \frac{x}{3}$$