Question

Make k the subject of the following two equations. Show each step of working.

5t = 13 − 9k

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7

1k = 13t − 7k

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2t

Solution

1) If $5t = \dfrac{13 - 9k}{7}$ is given, then

$35t = 13 - 9k$

$9k = 13 - 35t$

$k = \dfrac{13 - 35t}{9}$

If $\dfrac{5t}{7} = 13 - 9k$ is given, then

$5t = 13 \cdot 7 - 9k \cdot 7$

$63k = 91 - 5t$

$k = \dfrac{91 - 5t}{63}$

2) If $1k = 13t - \dfrac{7k}{2t}$ is given, then

$2kt = 26t^2 - 7k$

$2kt + 7k = 26t^2$

$$(2t+7)k = 26t^2$$

$$k = \frac{26t^2}{2t+7}$$

If $\frac{1k}{2t} = 13t - 7k$ is given, then

$$k\left(\frac{1}{2t} + 7\right) = 13t$$

$$k \cdot \frac{14t+1}{2t} = 13t$$

$$k = \frac{26t^2}{14t+1}$$

If $1k = \frac{13t-7k}{2t}$ is given, then

$$k\left(1 + \frac{7}{2t}\right) = \frac{13}{2}$$

$$k = \frac{\dfrac{13}{2}}{1 + \dfrac{7}{2t}}$$

$$k = \frac{\dfrac{13}{2}}{\dfrac{2t+7}{2t}}$$

$$k = \frac{13 \cdot 2t}{2(2t+7)}$$

$$k = \frac{13t}{2t+7}$$