

Question from Ryan (17.09.13)

25% of Zoe's savings is \$180 more than 30% of Jay's savings.

After Zoe spent 0.6 of savings and Jay spent half of his savings, Zoe has \$50 more than Jay.

Find Zoe's savings at first.

Solution:

After Zoe spent 0.6, Zoe is left with 0.4 or 40% of her savings while Jay is left with 50% of his savings.

$$\begin{aligned} 40\% \text{ of Zoe} &= 50\% \text{ of Jay} + \$50 \\ 80\% \text{ of Zoe} &= 100\% \text{ of Jay} + \$100 \end{aligned}$$

$$\begin{aligned} \text{At first, } 25\% \text{ of Zoe} &= 30\% \text{ of Jay} + \$180 \\ 5\% \text{ of Zoe} &= 6\% \text{ of Jay} + \$36 \\ 80\% \text{ of Zoe} &= 96\% \text{ of Jay} + \$576 \end{aligned}$$

$$96\% \text{ of Jay} + \$576 = 100\% \text{ of Jay} + \$100$$

$$\begin{aligned} 4\% \text{ of Jay} &= \$476 \\ 100\% \text{ of Jay} &= \$11900 \\ 80\% \text{ of Zoe} &= \$11900 + \$100 = \$12000 \\ 100\% \text{ of Zoe} &= \$12000 \div 0.8 \\ &= \mathbf{\$15000} \end{aligned}$$

Ans: Zoe saved \$15000 at first.