

Divisibility by 10

Annotation

Abbey solves this problem using known multiplication facts. She recognizes that multiples of ten all end in zero and uses this knowledge to reason and to explain her answer.

Problem: Divisibility by 10

The teacher shows this problem to the student and reads it with her as required:

Can I buy a computer game for \$85 using only \$10 notes without needing any change?

Student response

Abbey: No you can't.

Teacher: Tell me how you did that.

Abbey: I used my timetables, my ten times. I know that five \$10 notes is 5 x 10 which is \$50, six \$10 is \$60, and 7 x 10 is 70, 8 tens is 80 and 9 is 90. With the ten times table all the answers end in a zero, so you will never get \$10 notes that add up to \$85. \$80 and \$90 are closest to \$85. \$80 is not enough and \$90 is too much so you would need change.

Teacher: How would you record that?

Abbey: I guess the easiest way is like this. It kind of shows that the 85 would be in-between, and that's why you can't do it without change.

$$\begin{array}{l} 8 \times 10 = 80 \\ 9 \times 10 = 90 \end{array}$$