Testing divisibility

6 questions | 10 marks

Equivalent correct methods earn the corresponding marks.

1. Which of 2, 5 and 10 divide 145 exactly? [1 mark]

The final digit five passes the five test, but it is neither even nor zero.

Answer: 5 only.

2. Is 318 divisible by 3? Show the test. [1 mark]

$3+1+8=12$, a multiple of three.

Answer: Yes.

3. Is 427 divisible by 9? Show the test. [1 mark]

$4+2+7=13$, not a multiple of nine.

Answer: No.

4. Is 156 divisible by 6? Explain. [2 marks]

The number is even.

$1+5+6=12$, so it is divisible by three as well.

Answer: Yes.

5. Replace the square with one digit so $24\square$ is divisible by both 5 and 3. Find every possible digit. [3 marks]

Divisibility by five allows zero or five.

240 has digit sum six, so it passes three. 245 has digit sum eleven, so it fails.

Answer: 0.

6. Noah says every number divisible by 3 is divisible by 6. Give a counterexample and explain. [2 marks]

Nine is divisible by three but is odd, so it is not divisible by two or six.

Answer: For example, 9.