Checking reasonable answers

6 questions | 10 marks

Equivalent correct methods earn the corresponding marks.

1. A student writes $364 \times 8 = 29,120$. Explain why the answer is unreasonable and find the correct product. [2 marks]

400×8 is only 3,200. Calculate $2,400 + 480 + 32 = 2,912$.

Answer: It is about ten times too large; the correct product is 2,912.

2. There are 18 boxes with 24 pencils each. Find the total and give an estimate to check it. [2 marks]

$18 \times 24 = 360 + 72 = 432$. A total of 432 is close to 500.

Answer: 432 pencils; for example, estimate $20 \times 25 = 500$.

3. Check $903 - 487 = 416$ using the inverse operation. [1 mark]

$487 + 400 + 16 = 903$.

Answer: Correct, because $487 + 416 = 903$.

4. Which is reasonable for 49×21: 1,029 or 10,290? Explain. [2 marks]

$50 \times 20 = 1,000$. Exact calculation is $49 \times 20 + 49 = 1,029$.

Answer: 1,029

5. Check $936 \div 9 = 104$. [1 mark]

$100 \times 9 + 4 \times 9 = 900 + 36 = 936$.

Answer: Correct, because $104 \times 9 = 936$.

6. Mia estimates $298 + 403$ as 700, then says 690 must be the exact answer because it is close. Is that enough? Find the exact answer. [2 marks]

$298 + 400 + 3 = 701$. An estimate alone does not confirm an exact value.

Answer: No; the exact answer is 701.