PRACTICAL AND FINANCIAL LITERACY

# Estimating Before Calculating

### Difficulty level: Easy

### Practical and Financial Literacy

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## *Overview of the concept*

This is how a quick rough answer made first gives you a target. If your exact calculation lands far from that target, you know something went wrong before you hand the work in. It is like checking a map before a drive, so you notice when you have taken a wrong turn. A minute of estimating up front saves you from handing in an answer that is wildly wrong.



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## Worked examples

EXAMPLE 1

**Q** **Estimate 48 × 21 by rounding each number to the nearest ten, then work out the exact value.**

SOLUTION

This is an estimate first question: the estimate comes before the calculation, so it can catch a slip.

Estimate: 50 × 20 = 1,000

Exact: 48 × 21 = 1,008, which is close to 1,000, so the exact answer is plausible.

EXAMPLE 2

**Q** **Estimate $4.95 + $3.10 + $11.90 by rounding each amount to the nearest dollar, then work out the exact total.**

SOLUTION

Estimate first: $5 + $3 + $12 = $20

Exact: $4.95 + $3.10 + $11.90 = $19.95

$19.95 is close to $20, so the exact total is plausible.

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## Practice questions

**1** Estimate $297 + 405$ by rounding each number to the nearest ten.

A About 600

B About 700

C About 800

D About 900

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**2** What is the exact value of $297 + 405$?

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**3** **Your estimate was 700 and your exact answer is 702. Is 702 plausible against an estimate of 700? Answer yes or no.**

- A Yes
- B No

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**4** **Estimate 52 × 19 by rounding each number to the nearest ten.**

- A About 800
- B About 900
- C About 1,000
- D About 1,200

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5 **What is the exact value of 52 × 19?**

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6 **Your exact answer is 12,000 but your estimate was 1,000. What should you suspect?**

A. A slip, such as an extra zero

B. The estimate is wrong

C. 12,000 is the exact answer

D. You rounded the wrong way

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## 7 Why estimate before, not after, calculating?

- **A** So the estimate is independent and can catch the slip
- **B** So the calculation goes faster
- **C** So you do not need to check the answer
- **D** So the estimate matches the exact answer

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## 8 Estimate 648 ÷ 8 by rounding 648 to a compatible number.

- **A** About 70
- **B** About 80
- **C** About 90
- **D** About 100

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**9** What is the exact value of $648 \div 8$?

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**10** Estimate $\$6.49 + \$2.95$ by rounding each amount to the nearest dollar.

A. About $8

B. About $9

C. About $10

D. About $12

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## ANSWER KEY

**1.** About 700

**2.** 702

**3.** Yes

**4.** About 1,000

**5.** 988

**6.** A slip, such as an extra zero

**7.** So the estimate is independent and can catch the slip

**8.** About 80

**9.** 81

**10.** About $9

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