

WA5MNACN4

Calculating with number

Core + Challenge

NAPLAN-style

Estimating Products and Quotients

I can estimate multiplications and divisions, and decide if an answer is reasonable.

Name: _____ Date: _____ Score: _____ / 56

Key idea

To estimate a **product** ($\times$), round the bigger number to a friendly number, then multiply. $\approx$ means “is about”.

To estimate a **quotient** ($\div$), change the number to a close number that divides **easily** (a compatible number).

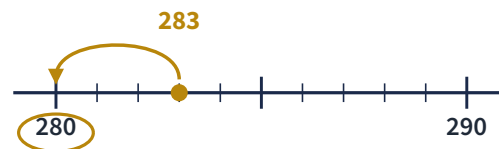
If you round **up**, the estimate is **more** than the exact answer. If you round **down**, it is **less**.

Example: $58 \times 6 \approx 60 \times 6 = 360$. 58 was rounded up, so the exact answer is a bit **less** than 360.

58 $\times$ 6 is about 60 $\times$ 6 = 360



283 $\div$ 7 is about 280 $\div$ 7 = 40



A

Warm up round, circle and estimate

/ 16 marks

Mark the number on the line with a dot. Round it. 1 mark each.

1 47 $\rightarrow$ nearest 10



2 382 $\rightarrow$ nearest 100



3 2,640 $\rightarrow$ nearest 1,000



4 65 $\rightarrow$ nearest 10



Circle the **best** estimate. Do not work out the exact answer. 1 mark each.

5 38 $\times$ 6

180 240 2,400

6 72 $\times$ 9

560 630 6,300

7 51 $\times$ 8

400 480 4,000

8 197 $\times$ 4

400 800 8,000

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Circle the number that makes the division **easy**. Write the estimate. 1 mark each.

9 $243 \div 6 \approx$

200 240 250

10 $358 \div 9 \approx$

300 350 360

11 $417 \div 7 \approx$

400 420 450

12 $196 \div 4 \approx$

150 190 200

Is the estimate **more** or **less** than the exact answer? Circle one. 1 mark each.

13 $29 \times 8 \approx 30 \times 8$

More Less

14 $62 \times 5 \approx 60 \times 5$

More Less

15 $51 \times 7 \approx 50 \times 7$

More Less

16 $98 \times 4 \approx 100 \times 4$

More Less

B Practise *use the skill*

/ 21 marks

- 1 Round the first number to the nearest **10**. Estimate the answer. Is your estimate **more** or **less** than the exact answer? [3 marks]

Calculation	Rounded	Estimate	More or less?
43×7			
68×5			
86×9			

- 2 A Kings Park tour bus has **48** seats. There are **9** buses. Mark 48 on the number line and round it to the nearest 10. **Estimate** the total number of seats. [2 marks]



Answer: _____

- 3 Zoe worked out $612 \div 3 = 24$. Use an **estimate** to show that her answer is **not** reasonable. What is the correct answer? [2 marks]

Answer: _____

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- 4 A section of Optus Stadium has **38** rows of **52** seats. Lee says there are **1,976** seats. Kim says there are **19,760** seats. **Estimate** to decide who is probably right. Explain. [3 marks]

Answer: _____

- 5 An excursion costs **\$19** per student. **27** students are going. The school has **\$600**. **Estimate** to decide if \$600 is enough. Explain why your estimate is safe. [2 marks]

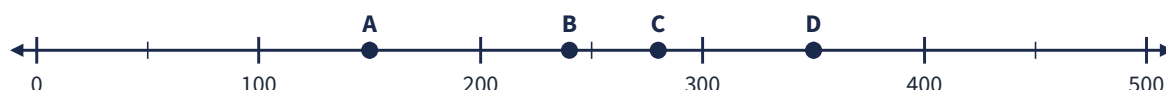
Answer: _____

- 6 Circle the **best** estimate for **$4,120 \div 8$** . Show the numbers you used. [2 marks]

5 50 500 5,000

Answer: _____

- 7 The answer to **6×47** is closest to which point on the number line? Circle A, B, C or D. Explain how you estimated. [2 marks]



Answer: _____

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- 8 A school needs **400** bananas for a fun run. A box holds **38** bananas. **a)** Estimate how many boxes they need. **b)** Check your estimate. Is it enough? How many boxes should they buy? [3 marks]

a) _____

b) _____

- 9 Circle **every** calculation with an answer **more than 1,000**. Use estimates and think carefully! [2 marks]

23×48

19×51

250×4

9×120

C Think it through *explain your thinking*

/ 10 marks

- 1 Ella says, "To estimate 46×7 , I round both numbers: $50 \times 10 = 500$." Do you agree with Ella's method? Explain and give a better estimate. [2 marks]

- 2 **True or false?** " 82×6 is more than 480." Explain **without** working out 82×6 . [2 marks]

- 3 **Always, sometimes or never true?** "Two numbers bigger than 0 are multiplied. If you round **one** of them **up** to a bigger number and leave the other the same, the estimate is **more** than the exact answer." Circle one. Explain. [2 marks]

Always

Sometimes

Never

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- 4 Which is the **odd one out** when you estimate? Explain. [2 marks]
- 49×61 29×98 612×5 $588 \div 2$

- 5 To estimate $347 \div 5$, Tom uses $300 \div 5$ and Mai uses $350 \div 5$. Whose estimate is better? Explain. [2 marks]

D Challenge *stretch yourself*

/ 9 marks

- 1 Joe multiplies a two-digit number by **7**. He rounds the two-digit number to the nearest 10 and gets an estimate of **420**. **a)** What could the two-digit number be? Find **all** the possibilities. **b)** For which of these numbers is the **exact** answer **less** than 420? [3 marks]

Answer: _____

- 2 A whole number rounds to **300** (to the nearest hundred). It is multiplied by **4**. [3 marks]
- What is the **smallest** possible answer? What is the **largest** possible answer?

Answer: _____

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- 3 Each of the **8** classes at a school collects about **285** cans in a term. The recycling depot pays **10c** for each can. **a)** Estimate the total number of cans and the money earned. **b)** Is your estimate more or less than the exact amount? **c)** Will they earn **more than \$200**? Explain. [3 marks]

Answer: _____

How did I go?

Warm up ____ / 16 Practise ____ / 21 Think it through ____ / 10 Challenge ____ / 9 **Total ____ / 56**

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