



A Brackets First!

If a long calculation has a part which appears in brackets, then that part must be done first.

Examples: Calculate

a) $8 \times (4 + 5)$ b) $(45 - 9) \div (4 + 2)$

Working: a) $8 \times (4 + 5) = 8 \times 9 = 72$

b) $(45 - 9) \div (4 + 2) = 36 \div 6 = 6$

1 Calculate.

a) $3 \times (5 + 3) = \dots\dots\dots$

b) $35 \div (10 - 3) = \dots\dots\dots$

c) $(19 + 5) \div 6 = \dots\dots\dots$

d) $20 - (6 + 5) = \dots\dots\dots$

e) $(14 - 8) + 5 = \dots\dots\dots$

f) $14 - (8 + 5) = \dots\dots\dots$

g) $3 \times (2 + 10) = \dots\dots\dots$

h) $(3 \times 2) + 10 = \dots\dots\dots$

2 Calculate.

a) $(70 - 16) \div (3 \times 3) = \dots\dots\dots$

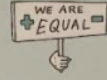
b) $(24 \div 3) - (16 \div 8) = \dots\dots\dots$

B From Left to Right

$+$ and $-$ have equal rights. That means, in a calculation with a string of adding and subtracting, you work from left to right.

Examples: Calculate

a) $4 + 7 - 8$ b) $20 - 14 + 16$



Working: a) $4 + 7 - 8 = 11 - 8 = 3$

b) $20 - 14 + 16 = 6 + 16 = 22$

1 Calculate, do the last four mentally.

a) $12 - 9 + 6 = \dots\dots\dots$

b) $26 + 8 - 14 = \dots\dots\dots$

c) $9 + 8 - 4 = \dots\dots\dots$ d) $12 - 10 + 17 = \dots\dots\dots$

e) $44 - 23 + 6 = \dots\dots\dots$ f) $6 + 75 - 35 = \dots\dots\dots$

\times and \div have equal rights too. In a calculation with both multiplication and division, you work from left to right.

2a) $8 \times 3 \div 6 = \dots\dots\dots$

b) $35 \div 7 \times 9 = \dots\dots\dots$

c) $4 \times 9 \div 6 = \dots\dots\dots$ d) $2 \times 12 \div 3 = \dots\dots\dots$

e) $27 \div 3 \times 7 = \dots\dots\dots$ f) $48 \div 2 \div 8 = \dots\dots\dots$

C Priorities

\times and \div have priority rights over $+$ and $-$.

If a calculation has a mixture of operations you do the bracketed part first, then \times and \div and finally $+$ and $-$.

Examples: Calculate a) $16 - 2 \times 5$

b) $24 \div 4 + 4$

c) $8 - (9 + 3) \div 2$

Working: a) $16 - 2 \times 5 = 16 - 10 = 6$

b) $24 \div 4 + 4 = 6 + 4 = 10$

c) $8 - (9 + 3) \div 2 = 8 - 12 \div 2 = 8 - 6 = 2$

1 Calculate in the right order.

a) $14 - 2 \times 3 = \dots\dots\dots$

b) $(18 - 6) \div 2 = \dots\dots\dots$

c) $21 \div 3 + 4 = \dots\dots\dots$

d) $10 - 12 \div 6 = \dots\dots\dots$

e) $12 - 8 + 3 \times 4 = \dots\dots\dots$

f) $48 \div (4 \times 2) + 7 = \dots\dots\dots$

g) $20 + 3 \times 5 - 6 = \dots\dots\dots$

h) $36 \div (15 - 2 \times 3) = \dots\dots\dots$

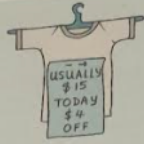
32 Number Sentences

A Take Aways

Example:
Adam buys 3 of these advertised T-shirts. Which number sentence represents what Adam pays?

- A $3 \times 15 - 4$ B $15 - 4 \times 3$
C $3 \times (15 - 4)$ D $4 \times (15 - 3)$

Answer: Each T-shirt costs $15 - 4$ dollars. Adam pays 3×11 dollars. Only sentence C shows that calculation. (In A and B the multiplication is done first)



- 1 Zoe and two friends have a can of drink each and they shared a pizza. Zoe worked out how much the meal cost for each of them. Select the correct number sentence and circle it.

- A $18.75 + 1.25 \div 3$
B $1.25 + 18.75 \div 3$
C $(1.25 + 18.75) \div 3$
D $1.25 \div 3 + 18.75 \div 3$

- 2 Five friends shared a litre pack of juice and 3 boxes of chips. Circle the number sentence which shows the cost per person.

- A $3.95 + 2.25 \times 3 \div 5$
B $3 \times 2.25 + 3.95 \div 5$
C $(3.95 + 2.25) \times 3 \div 5$
D $(3.95 + 2.25 \times 3) \div 5$

The pizzas are cut into 8 slices. Matthew had 3 slices of pizza. Circle the number sentence which represents the cost of his meal.

- A $18.75 \div 8 \times 3$
B $18.75 \div (8 \times 3)$
C $8 \times 18.75 \div 3$
D $3 \times (18.75 - 8)$



\$18.75 each



\$2.25 per box



\$3.95 per litre



\$1.25 per can

B Savings

- 1 Tanya saves \$8.50 per week. After 5 weeks of saving she buys a bracelet for \$35.95. Write *one* number sentence which enables us to calculate how much is left of Tanya's savings.

- 2 The balance on Carl's savings account is zero. Carl's parents encourage him to save \$5 per week. Carl's mum says, "For every \$5 you deposit weekly into your account, I will add another \$2".

- a) Write a number sentence for the total amount in Carl's savings account after he manages to save \$5 per week for 7 weeks and mum keeps her word.

- b) Carl's dad says, "If you manage to save \$5 each week for a total of 10 weeks, then I will deposit an extra \$2 into your account."

Write a number sentence for the amount after Carl saves \$5 per week for 10 weeks. Both mum and dad contribute to Carl's savings.

- c) Now calculate the amount Carl can have in 10 weeks.

- 3 On Saturdays Jamie and Dan mow six lawns in the neighbourhood. They get \$20 per lawn, but each Saturday they need to spend \$10 on petrol.

- a) Write *one* number sentence for the amount gained after the work is done. Do not calculate the result.

- b) Jamie and Dan share the money equally between them. Write a number sentence for Jamie's share. Calculate the result.

- c) Now calculate Jamie's share.



14 Multiplication Strategies 3

A Decompositions and Compensation

Example : Calculate a) 3×47 b) 5×88 c) 64×8
 Working :
 a) Using decomposition $3 \times 47 = (3 \times 40) + (3 \times 7) = 120 + 21 = 141$
 b) Using compensation $5 \times 88 = (5 \times 90) - (5 \times 2) = 450 - 10 = 440$
 c) Using decomposition $64 \times 8 = (60 \times 8) + (4 \times 8) = 480 + 32 = 512$

- 1 Calculate.
- a) $4 \times 54 = \dots\dots\dots$
 - b) $6 \times 63 = \dots\dots\dots$
 - c) $5 \times 96 = \dots\dots\dots$
 - d) $8 \times 59 = \dots\dots\dots$
 - e) $38 \times 7 = \dots\dots\dots$
 - f) $44 \times 8 = \dots\dots\dots$
 - g) $72 \times 9 = \dots\dots\dots$

- 2 Do more of the working in your head when you calculate these.
- a) $6 \times 43 = \dots\dots\dots$
 - b) $3 \times 86 = \dots\dots\dots$
 - c) $5 \times 78 = \dots\dots\dots$
 - d) $7 \times 47 = \dots\dots\dots$
 - e) $54 \times 9 = \dots\dots\dots$
 - f) $39 \times 8 = \dots\dots\dots$
 - g) $65 \times 7 = \dots\dots\dots$

B One More Step

Example : Calculate 40×67
 Working : $40 \times 67 = (4 \times 67) \times 10 = (240 + 28) \times 10 = 2680$

- 1 Calculate.
- a) $30 \times 49 = \dots\dots\dots$
 - b) $60 \times 24 = \dots\dots\dots$
 - c) $70 \times 18 = \dots\dots\dots$
 - d) $73 \times 80 = \dots\dots\dots$
 - e) $90 \times 28 = \dots\dots\dots$
 - f) $59 \times 60 = \dots\dots\dots$
 - g) $40 \times 84 = \dots\dots\dots$
- 2 Calculate these using a strategy of your choice. Show what you are doing.
- a) $50 \times 67 = \dots\dots\dots$
 - b) $99 \times 80 = \dots\dots\dots$
 - c) $80 \times 48 = \dots\dots\dots$
 - d) $34 \times 60 = \dots\dots\dots$
 - e) $25 \times 18 = \dots\dots\dots$
 - f) $70 \times 56 = \dots\dots\dots$
 - g) $49 \times 90 = \dots\dots\dots$