Planner

Mental methods

- Organising a calculation so that you can work it out mentally

Keywords

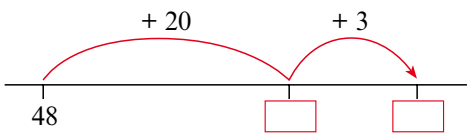
You should know

explanation 1

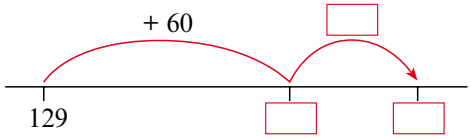
online

1 Copy the diagrams. Fill in the missing values to show the calculations.

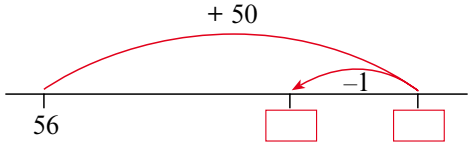
a 48 + 23



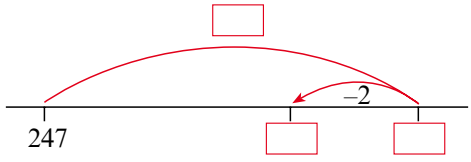
b 129 + 64



c 56 + 49



d 247 + 78



2 Work out.

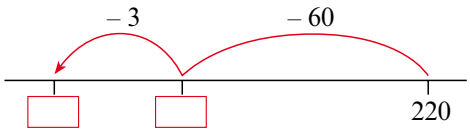
a 37 + 54 **b** 65 + 38 **c** 136 + 57

d 426 + 69 **e** 317 + 44 **f** 428 + 239

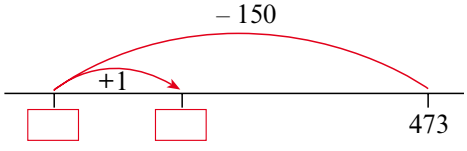
g 278 + 188 **h** 337 + 453 **i** 112 + 344

3 Copy these diagrams and fill in the missing values to show the calculations.

a 220 − 63



b 473 − 149



4 Work out these differences.

a 170 − 51 **b** 318 − 64 **c** 143 − 49

d 261 − 178 **e** 625 − 219 **f** 732 − 516

g 817 − 472 **h** 227 − 169 **i** 563 − 418

5 Copy and complete.

a 37 + ☐ = 100 **b** 453 + ☐ = 1000 **c** 8.9 + ☐ = 10

d 4.36 + ☐ = 10 **e** 87.4 + ☐ = 100 **f** 41.8 + ☐ = 100

g £7.80 + ☐ = £10 **h** £4.68 + ☐ = £10 **i** £34.80 + ☐ = £100

6 Work these out.

a 100 − 68 **b** 10 − 4.1 **c** 10 − 3.65

d 100 − 9.27 **e** 100 − 57.9 **f** 100 − 19.38

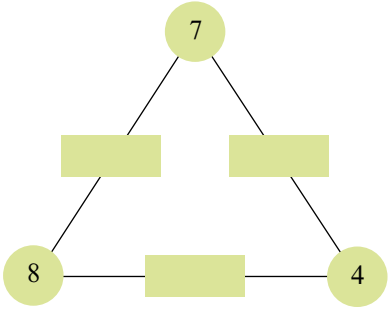
g 100 − 26.4 **h** 100 − 89.21 **i** 10 − 0.78

7 Find the change given from a £10 note for each of these costs.

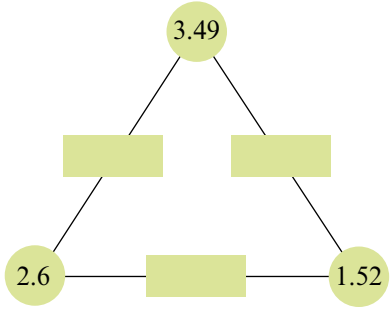
a £9.70 **b** £6.40 **c** £3.32 **d** £4.47 **e** £1.96 **f** 58p

8 Copy and complete. Each number in a rectangle is the sum of the numbers in the circles on either side.

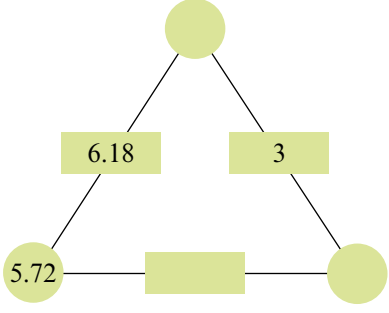
a



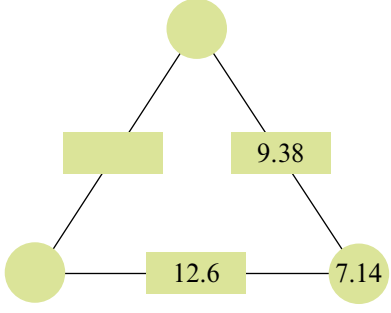
b



c



d



explanation 2

9 These calculations show some different ways to partition a multiplication. Copy and complete.

a $43 \times 6 = (40 \times 6) + (\square \times 6)$
$= \square + \square$
$= \square$

b $39 \times 7 = (40 \times 7) - (\square \times 7)$
$= \square - \square$
$= \square$

c $3.7 \times 11 = (3.7 \times 10) + (3.7 \times \square)$
$= \square + \square$
$= \square$

d $5.8 \times 9 = (5.8 \times 10) - (5.8 \times \square)$
$= \square - \square$
$= \square$

10 Use partitioning to work out these multiplications mentally.

a 23×8 **b** 99×7 **c** 6×54

d 72×11 **e** 198×3 **f** 81×99

11 Use partitioning to work out these multiplications mentally.

a 6.8×11 **b** 12.9×3 **c** 5.7×9

d 10.1×36 **e** 48×9.9 **f** 12×38

explanation 3 online

12 Copy and complete.

a $25 \times 36 = (25 \times 4) \times \square$
$= \square \times \square$
$= \square$

b $2.5 \times 24 = (2.5 \times 4) \times \square$
$= \square \times \square$
$= \square$

c $125 \times 12 = (125 \times 4) \times \square$
$= \square \times \square$
$= \square$

d $12.5 \times 16 = (12.5 \times 2) \times \square$
$= \square \times \square$
$= \square$

e $6.4 \times 30 = (6.4 \times 10) \times \square$
$= \square \times \square$
$= \square$

f $0.92 \times 400 = (0.92 \times 100) \times \square$
$= \square \times \square$
$= \square$

13 Work these out.

a 25×16	**b** 25×17	**c** 25×14
d 125×8	**e** 125×9	**f** 125×32
g 2.5×12	**h** 7.5×12	**i** 1.25×24
j 3.2×40	**k** 0.72×300	**l** 0.75×400

Look for connections between the questions that may help you work out the answers.

14 Copy and complete.

a $4.86 \times 50 = \square \times 100$
$= \square$

b $12.5 \times 14 = 25 \times \square$
$= \square$

c £7.50 × 60 = £15 × □
= □

d £6.25 × 44 = £25 × □
= □

15 George works 5 days per week. He saves £7.50 each day by walking to work instead of driving. How much will George save after these times?

a 1 week **b** 4 weeks **c** 50 weeks

16 Work these out.

a 4.5×8	**b** 11.5×12	**c** £2.25 × 16
d £32 × 1.25	**e** £96 × 1.125	**f** 96 × £7.50
g £28 × 2.5	**h** 1.625 × £32	**i** £1.25 × 84

17 Zeynep swam 48 lengths of a swimming pool to raise money for charity. How much did she raise if she is sponsored these amounts per length?

a £1.50 **b** £3.25 **c** £4.25

explanation 4

***18** $139 \times 48 = 6672$. Use this fact to work out these.

a 139×24	**b** 139×480	**c** 139×16
d 1.39×48	**e** 13.9×0.48	**f** 13.9×24

19 Each calculation is equal to 2.75×400. What are the missing numbers?

a 275 × □ **b** 5.5 × □ **c** 11 × □

20 $24 \times 136 = 3264$. Use this fact to work out these.

a $3264 \div 24$ **b** $3264 \div 136$ **c** $3264 \div 48$

d $3264 \div 12$ **e** $3264 \div 68$ **f** $6528 \div 272$

explanation 5 online

21 **a** Which of these numbers are divisible by 3?

1467 2513 8215 7324 6543 5437

b Are any of the numbers divisible by 6? Explain your answer.

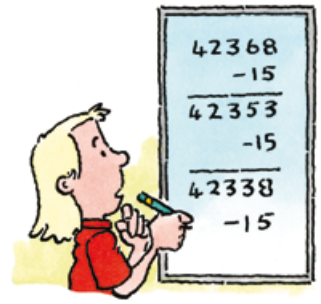
22 Write a 6-digit number divisible by 30.

23 Only one of the numbers below is divisible by 15.

42 368 76 542 97 650 86 735 65 874 98 124 31 576

a Describe an efficient way to find the number.

b Which number is it?



24 Write a 5-digit number which is divisible by

a 9 **b** 18 **c** 45 **d** 18 and 45

explanation 6

25 Copy and complete these calculations.

a $1200 \div 24 = \frac{1200}{24}$

$= \frac{100}{\square}$

$= \square$

b $134 \div 50 = \frac{\square}{50}$

$= \frac{\square}{100}$

$= \square$

26 Work these out.

a $432 \div 18$ **b** $8250 \div 150$ **c** $6300 \div 450$

27 Work these out.

a $423 \div 50$ **b** $321 \div 25$ **c** $216 \div 75$