

Use order of operations with directed numbers

1 Tom works out $2 + 5 \times 4$ and says the answer is 28

a) What mistake has Tom made?

He has done the addition first.

b) What is the correct answer?

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2 Work out the calculations without a calculator.

a) $8 \div 4 + 3 =$ 5

f) $30 + 6 \times 11 - 11 =$ 85

b) $5 + (10 \div 2) =$ 10

g) $12 + (19 + 2) \div 3 =$ 19

c) $5 + 10 \div 2 =$ 10

h) $30 \div 10 + 3 \times 2 =$ 9

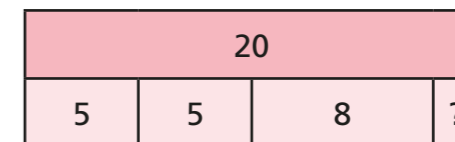
d) $8 \div 2 + 5 \times 5 =$ 29

i) $20 \div 2^2 + (19 - 12) =$ 12

e) $5 + 3 \times 15 + 2 =$ 52

j) $(5^2 + 45) \div 5 \times 8 =$ 112

3 a) Circle the calculation that does **not** find the unknown number in the bar model.



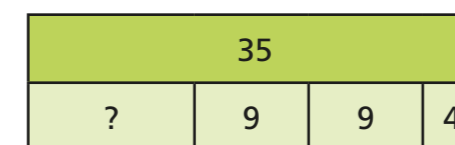
$20 - 8 - 2 \times 5$

$20 - (5 \times 2 + 8)$

$20 - 2 \times 5 + 8$

$20 - 2 \times 5 - 8$

b) Write four different number sentences that find the unknown in this bar model.



E.g. $35 - (2 \times 9 + 4)$

$35 - (9 + 9 + 4)$

$35 - 2 \times 9 - 4$

$35 - 4 - 2 \times 9$

4 Dani is answering this question.

$11 - 12 \div -3$

Here is her working out.

$12 \div -3 = -4$

$11 - 4 = 7$

Explain the mistake that Dani has made.

She has ignored the subtraction that's already there.

It should be $11 - (-4)$

What is the correct answer?

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What could Dani use in the future so that she doesn't make the same mistake again?

5 Complete the calculations.

a) $35 + 8 \div -2 = \boxed{31}$

f) $\frac{35 + 8}{-2} = \boxed{-21.5}$

b) $-2 - 7^2 = \boxed{-51}$

g) $-(2 - 7)^2 = \boxed{-25}$

c) $(-8)^2 - 5 \times 3 - 17 = \boxed{32}$

h) $-8^2 - 5 \times 3 - 17 = \boxed{-96}$

d) $-6 \div -2 + -1 \times 9 = \boxed{-6}$

i) $-6 \div (-2 + -1) \times 9 = \boxed{18}$

e) $11 - 2 \times -7 + 4 = \boxed{29}$

j) $11 - 2(-7 + 4) = \boxed{17}$

6 Fill in the missing numbers.

a) $6 + \boxed{7} \times 2 = 20$

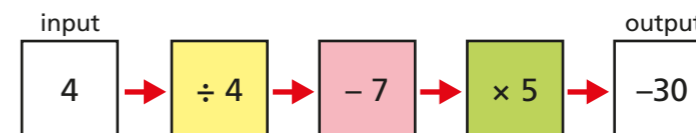
c) $42 = (\boxed{-4})^2 + 13 \times 2$

b) $-2 \times 5 - \boxed{8} \div 4 = -12$

d) $-3 = 17 - \boxed{6} \times 3 + \boxed{-2}$

Can you find more than one solution for any of the calculations?

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Tick the correct number sentence for the function machine.

$4 \div 4 - 7 \times 5 = -30$ ✓

$(4 \div 4) - (7 \times 5) = -30$

$4 \div (4 - 7) \times 5 = -30$

$(4 \div 4 - 7) \times 5 = -30$

8

Evaluate these expressions when $a = -4$, $b = 6$, $c = 3$ and $d = -8$

a) $d + 2(c - a)$

b) $c + ad$

$\boxed{6}$

$\boxed{35}$

9

Insert brackets into the calculations to make the answers correct.

a) $5 - (20 + 2) \div 11 = 3$

b) $21 = 5 + 4 \times (15 - 11)$

10

Use these numbers, operations and brackets to make each of the numbers.

You can use each one once only per part. You do not need to use them all.



a) 13 $\underline{5 \times 3 - 2}$

c) -9 $\underline{-3 \times (5 - 2)}$

b) -1 $\underline{2 - 3}$

d) 0 $\underline{5 + 3 - 4 \times 2}$

Can you find more than one answer for each number?