

Foundation Check In - 1.03 Combining arithmetic operations

Do not use a calculator for these questions.

1. Work out $7 + 2^2 \times 3$.
2. Put brackets into this statement to make it correct.

$$15 - 2 \times 3 + 1 = 52$$

3. Insert +, −, × or ÷ to make the statement correct.

$$25 \square 14 \square 2 = 18$$

4. Complete this equation using +, −, × or ÷.

$$39 \square 2 \times 4 = 5^2 + 12 \square 2$$

5. Work out $54 \div \sqrt{81} + 2 \times 4^3$.
6. By using just one pair of brackets, the following can be made true.

$$\sqrt{64} \times 4 + 4 = 9^2 - 9 \div 2$$

Show the location of the brackets and give the numeric value of each side of the expression when true.

7. Cara says that $3^2 + 8^2$ is the same as 11^2 . Explain why she is wrong.
8. Show that $\frac{5 \times 2^3}{\sqrt{81}} = \frac{8\sqrt{25}}{(5-2)^2}$.
9. Hari buys 4 pens that cost 80p each and 6 pencils that cost 15p less than the pens. How much change does he get from £10?
10. Put the following in order, from smallest to largest.

$$\frac{7^2 + 1}{\sqrt{25}} \quad \frac{5^3 - 9^2}{4^2 - 5} \quad \frac{\sqrt{(8^2 + 6^2)}}{0.5} \quad 2^3 - 3 \times 2$$

Extension

Use all of the numbers 3, 4, 7, 8, 50 and 75 to make an answer of 137.

GCSE (9–1)

MATHEMATICS

Answers

- 19
- $(15 - 2) \times (3 + 1) = 52$
- $25 - 14 \div 2$
- $39 - 2 \times 4 = 5^2 + 12 \div 2 (= 31)$
- 134
- $\sqrt{64} \times 4 + 4 = (9^2 - 9) \div 2$
- $3^2 + 8^2 = 9 + 64 = 73$. Cara has worked out $(3 + 8)^2 = 11^2$ which is 121.
- $\frac{5 \times 2^3}{\sqrt{81}} = \frac{5 \times 8}{9} = \frac{40}{9}$ and $\frac{8\sqrt{25}}{(5-2)^2} = \frac{8 \times 5}{3^2} = \frac{40}{9}$
- Cost of pens = $4 \times 80 = 320\text{p} = \text{£}3.20$, cost of pencils = $6 \times (80 - 15) = 390\text{p} = \text{£}3.90$
 $10 - 3.20 - 3.90 = \text{£}2.90$ change.

10. $2^3 - 3 \times 2 = 2$ $\frac{5^3 - 9^2}{4^2 - 5} = 4$ $\frac{7^2 + 1}{\sqrt{25}} = 10$ $\frac{\sqrt{(8^2 + 6^2)}}{0.5} = 20$

Extension

Here are some possible solutions.

$$50 \times 3 + 75 \div 5 - 7 \times 4 = 137$$
$$(8 - 7) \times 4 \times (50 + 3) - 75 = 137$$
$$(8 - 7) \times 3 \times 4 + 75 + 50 = 137$$

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MATHEMATICS

Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Use the correct order of operations			
AO1	2	Insert brackets to make a calculation correct			
AO1	3	Complete a calculation by choosing the correct operation			
AO1	4	Choose the correct operations to complete a number statement			
AO1	5	Use the correct order of operations			
AO2	6	Insert brackets to make an expression correct			
AO2	7	Explain the correct order in which to carry out a calculation involving indices			
AO2	8	Use the correct order of operations to evaluate and compare two calculations			
AO3	9	Solve a word problem by carrying out the steps in the correct order			
AO3	10	Solve multi-step calculations and then put the answers in order of size			

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