

Topic Check In - 1.03 Combining arithmetic operations

Calculate the following, showing all your working.

1. $(3 + 6) \times (9 - 2)$

2. $3 + 6 \times 9 - 2$

3. $6 - 8 \div 2$

4. $\sqrt{3^2 + 4^2}$

5. $((3 + \sqrt{4}) \times 2)^2$

6. Zosia says “ $6 + 5 \times 2$ is equal to 22.”
Explain why Zosia is incorrect.

7. Explain why $(4 - 2) \div (6 - 3)$ could be written as $\frac{2}{3}$.

8. If the reciprocal of 5 is $\frac{1}{5}$ and the reciprocal of $\frac{1}{3}$ is 3, explain how you could find the reciprocal of $\frac{1}{2}$.

9. John makes party bags containing 1 ball, 2 sweets and 1 card. If each ball costs 50p, each sweet costs 5p and each card costs 15p, how much change will he have from £10 if he makes up 8 bags?

10. Arrange the following in order from smallest to largest.

$$\frac{4+2}{1+3} \quad \frac{(3+1)^2}{4} \quad \frac{3+1}{4 \times 2} \quad \frac{(3-4)^2}{1}$$

Extension

Use four 4s and any mathematical operations to make the totals 1, 2, 3, 4 etc.

$$\begin{aligned} 4 & 4 & 4 & 4 & = & 1 \\ 4 & 4 & 4 & 4 & = & 2 \\ 4 & 4 & 4 & 4 & = & 3 \\ 4 & 4 & 4 & 4 & = & 4 \end{aligned}$$



GCSE (9-1) MATHEMATICS

Answers

- 63
- 55
- 2
- 5
- 100
- Because she should multiply 5 by 2 first.
- Because after doing the subtractions you are left with $2 \div 3$, and a division can be written as a fraction.
- By swapping the numerator and denominator of the fraction e.g. $\frac{2}{1}$.
- £4.00
- $\frac{3+1}{4 \times 2}$ $\frac{(3-4)^2}{1}$ $\frac{4+2}{1+3}$ $\frac{(3+1)^2}{4}$

Extension

Possible solutions:

$$(4 + 4) \div (4 + 4) = 1$$

$$4 \div 4 + 4 \div 4 = 2$$

$$(4 + 4 + 4) \div 4 = 3$$

$$4 + (4 - 4) \div 4 = 4$$

$$(4 \times 4 + 4) \div 4 = 5$$

$$4 + (4 + 4) \div 4 = 6$$

$$4 + 4 - 4 \div 4 = 7$$

$$4 \times 4 \div 4 + 4 = 8$$

$$4 + 4 + 4 \div 4 = 9$$



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Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Solve inside the brackets before doing multiplication			
AO1	2	Multiplication before addition or subtraction			
AO1	3	Use BIDMAS			
AO1	4	Recognise that the expression under the square root symbol should be treated as being inside brackets			
AO1	5	Work out a set of brackets within a set of brackets			
AO2	6	Apply fact that multiplication comes before addition			
AO2	7	Apply BIDMAS to solve a problem			
AO2	8	Find reciprocals			
AO3	9	Solve a word problem by using correct order of operations			
AO3	10	Use fraction line as a division of implied bracketed terms			

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