Integers – Lesson 12

Welcome to our final lesson on integers. As you have experienced integers are used a lot in algebra. In order to make progress in S3 and beyond it is important that you can work confidently and accurately with a mixture of negative and positive numbers.

First carry out these calculations, remembering the correct order of operations: -

1) $2 \times 4 - 6 \times 8$ **2)** $-8 \div 4 + -6 \div 2$ **3)** $-2 \times -4 + -6 \times -8$

4) $-2 \times (-4 + -6) \times -8$ **5)** $-2 + -4 \times -6 + -8$ **6)** $-8 + -4 \div 2 + -6$

7) $(-2)^2 + (-4)^2 + (-6)^2$ **8)** $(2 + -4)^2 + (-6)^2$ **9)** $(-2)^2 + (-4 + -6)^2$

Now solve these equations: -

10) $2x + 3 = -9$ **11)** $2x - 3 = -9$ **12)** $-2x + 3 = -9$

13) $-2x - 3 = -9$ **14)** $-2x + 3 = 9$ **15)** $-2x - 3 = 9$

16) $3x + 2 = -10$ **17)** $3x - 2 = -23$ **18)** $-3x - 2 = -23$

If $a = -2$ and $b = -5$, evaluate the following: -

19) $3a + 4b$ **20)** $100 - 5b$ **21)** $4a - 5b$

22) $a^2 + ab + b^2$ **23)** $3a^3 + 2b^3$ **24)** $3a^2 + 4a + 5$

25) $\dfrac{100}{2a + 3b}$ **26)** $\dfrac{4a^3 + 2a}{b}$ **27)** $\dfrac{5a + 2b^2}{5a - b}$

Finally, simplify these expressions: -

26) $2x + 3y - 4x - 5y$ **27)** $3a + 4b - 3a - 6b$ **28)** $2c + 4d - 8c + 10d$

29) $-10e - 11f + 5e + 6f$ **30)** $-2g - 3h - 4g - 5h$ **31)** $-7j + 8k + 7j - 10k$

32) $2m + 3n - 4m - 3n + m$ **33)** $-p + q - 2p + 3q - 4p$ **34)** $-3r + 2s + 6r - 2s - 3r$