Put the Number In

EX02-V1 · storyboard · EX02 Evaluate an expression. Read each picture with its sentences.

Picture 1

Evaluate $3x^2 - x$ when $x = -2$.

$$3(-2)^2 - (-2)$$ the value in brackets

$$= 3 \cdot 4 + 2$$ powers first

$$= \boxed{14}$$

1. Evaluate 3x² − x when x = −2.
2. Put negative two in, in brackets, everywhere x is.
3. Powers first: negative two squared is 4.
4. And taking away negative two adds two.
5. Multiply, then add: twelve plus two is 14.

Picture 2

Trap $3x^2, \quad x = -2$

$\times \; 3x^2 = 36$

$\checkmark \; 3x^2 = 3 \cdot 4 = 12$

6. Watch for the trap: squaring the three as well.
7. The square is only on x: three times four is 12, not 36.

Picture 3

Evaluate $-s^2 + 4s$ when $s = -4$.

$$-(-4)^2 + 4(-4) \quad \text{the value in brackets}$$

$$= -16 - 16 \quad \text{square first, then the minus}$$

$$= \boxed{-32}$$

8. Now evaluate $-s^2 + 4s$ when $s = -4$.
9. Put negative four in, in brackets.
10. Square first: negative four squared is 16, and the minus in front makes it −16.
11. Four times negative four is −16 too.
12. Together, −32.

Picture 4

Trap $-s^2, \quad s = -4$

$\times \; -s^2 = 16$

$\checkmark \; -s^2 = -(16) = -16$

13. Watch for the trap: squaring the minus sign.
14. $-s^2$ means the negative of s^2, so it is -16, never 16.