# Substitution into Formulae

IGCSE Maths · Grades 9–10 · British and American curriculum · About 20 minutes · 8 questions

Name _____ Date _____ Score / 8

**WHAT YOU WILL PRACTISE**

- Substitute numbers into linear expressions
- Substitute into expressions that contain squares
- Substitute negative numbers and use a formula

**WORKED EXAMPLE**

Find the value of $3x^2 - 2x$ when $x = -2$.

1. Square first: $(-2)^2 = 4$.
2. Multiply: $3 \times 4 = 12$.
3. Work out the second term: $2 \times (-2) = -4$, and subtracting $-4$ is the same as adding 4.
4. Combine: $12 + 4 = 16$.

**Answer:** 16

## Questions

Show your working in the space under each question.

**1.** Find the value of $3x + 4$ when $x = 5$

**2.** Find the value of $2a - 3b$ when $a = 7$ and $b = 2$

**3.** Find the value of $x^2 + 3$ when $x = 4$

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**4.** Find the value of $5y^2$ when $y = 3$

**5.** Find the value of $2x^2 - x$ when $x = -3$

**6.** Find the value of $(a + b)/c$ when $a = 14$, $b = 6$ and $c = 4$

**7.** Use the formula $v = u + at$ to find $v$ when $u = 5$, $a = 3$ and $t = 4$

**8.** Use the formula $A = \frac{1}{2}bh$ to find $A$ when $b = 10$ and $h = 7$

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# Answers: Substitution into Formulae

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

| Q | QUESTION | ANSWER |
|---|---|---|
| 1 | Find the value of $3x + 4$ when $x = 5$ | **19** |
| 2 | Find the value of $2a - 3b$ when $a = 7$ and $b = 2$ | **8** |
| 3 | Find the value of $x^2 + 3$ when $x = 4$ | **19** |
| 4 | Find the value of $5y^2$ when $y = 3$ | **45** |
| 5 | Find the value of $2x^2 - x$ when $x = -3$ | **21** |
| 6 | Find the value of $(a + b)/c$ when $a = 14$, $b = 6$ and $c = 4$ | **5** |
| 7 | Use the formula $v = u + at$ to find $v$ when $u = 5$, $a = 3$ and $t = 4$ | **$v = 17$** |
| 8 | Use the formula $A = \frac{1}{2}bh$ to find $A$ when $b = 10$ and $h = 7$ | **$A = 35$** |

**TUTOR TIP**

Put negative numbers in brackets when you substitute. $(-3)^2$ is 9, but a calculator reads $-3^2$ as $-9$.

**Stuck on a question? Work through it live with a tutor.**

YFCampus offers one-to-one online Maths tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/sa**

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