

GAC Mathematics

Name: _____ Score: _____

1. Why is 1 not a prime number?

- ☐ It is too small
- ☐ It has only one factor, and a prime has exactly two
- ☐ It is not an integer
- ☐ It is irrational

2. In the expression $5x^2 - 3x + 7$, what is 5 called?

- ☐ The constant
- ☐ The coefficient of x^2
- ☐ The index
- ☐ The variable

3. Find the gradient of the line through (2, 1) and (6, 9).

4. What do the interior angles of a hexagon add up to, in degrees?

5. You know the adjacent side and want the opposite side. Which ratio do you use?

- ☐ Sine
- ☐ Cosine
- ☐ Tangent
- ☐ The cosine rule

6. What is $\log_{10} 1000$?

7. Evaluate $5 + 3 \times 2^2 - 4$.

8. $(x + 1)^2 = x^2 + 2x + 1$ is an identity, not an equation to solve.

- ☐ True
- ☐ False

9. That line is $y = 2x + c$. Find c .

10. Which law lets you solve for an unknown that sits in an exponent?

☐ $\log(mn) = \log m + \log n$

☐ $\log(m/n) = \log m - \log n$

☐ $\log(m^k) = k \log m$

☐ $\log(m + n) = \log m + \log n$

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1. It has only one factor, and a prime has exactly two

A prime has exactly two factors, itself and 1. For the number 1 those are the same factor, so it has only one.

2. The coefficient of x^2

A coefficient multiplies a term with a letter in it. The constant here is 7, which has no letter.

3. 2

Rise over run: $(9 - 1) \div (6 - 2) = 8 \div 4 = 2$.

4. 720

$(n - 2) \times 180^\circ$ with $n = 6$ gives $4 \times 180^\circ = 720^\circ$.

5. Tangent

Tangent is opposite over adjacent — the only ratio that involves neither hypotenuse.

6. 3

It asks what power of 10 gives 1000, and $10^3 = 1000$.

7. 13

Indices first ($2^2 = 4$), then multiplication ($3 \times 4 = 12$), then left to right: $5 + 12 - 4 = 13$.

8. True

It is true for every value of x , so there is nothing to solve — it is a fact about the algebra.

9. -3

Substitute (2, 1): $1 = 4 + c$, so $c = -3$. Check with (6, 9): $2(6) - 3 = 9 \checkmark$.

10. $\log(m^k) = k \log m$

The power law brings k down to the front, where it can be divided out. The fourth option is not a law at all.