

MAP102 Placement Exam Prep - Algebra

This set of questions is directly related to the material covered in this course. Most of it is straightforward while some of the questions will increase your knowledge base of the topics.

I recommend you complete all the lectures and corresponding homeworks before attempting these.

Remember you will be expected to solve these without a calculator!

1. If $x = 5$ then $3x =$

2. If $x = -1$ then $3x + 9 =$

3. If $3x + 4 = 19$ then $x =$

4. If $2x^2 + 13 = 63$ then $x =$

5. If $4x - 5 = 3 + 2x$ then $x =$

6. Fully simplify $3x + 2(x - 1) - 3(y - 2)$.

7. If $a \neq 0$, $b \neq 0$ and $ax + b = c$ then $x =$

8. The sum of three consecutive integers is 156. What is the **largest** of these integers?

9. A boy buys 12 candies, all of which are either gumballs or jelly beans. Gumballs cost 3 cents each while jelly beans cost 4 cents each. If the boy paid 41 cents in all, how many gumballs did he buy?

10. If $x \neq 0$ and $y \neq 0$ then $(x^2 y^4)/(x^3 y^2) =$

11. The straight lines $x=2$ and $y=3$...

- a. cross at the point (2,3)
- b. cross at the point (3,2)
- c. cross at the point (5,5)
- d. are the same
- e. do not cross

12. The straight lines $x - y - 1 = 0$ and $x + y - 3 = 0$ cross at the point (,).

13. What is the equation of the line which passes through the origin and is parallel to the line $y = 3x + 4$?

14. $\frac{6n + 3n^2}{3n} =$

15. Factor: $2x^2 + 5x - 3$

16. The y -value of the solution of the system $\begin{cases} 2x - y = 9 \\ 3x + 2y = 10 \end{cases}$ is

17. Which of the following are factors of $x^4 - 16$?

(I) $x - 2$ (II) $x + 2$ (III) $x^2 + 4$

- a. I only
- b. III only
- c. II only
- d. I and II only
- e. I, II and III

18. The solutions to $x^3 + 2x^2 - 3x = 0$ are

19. If $x > 0$ then factor and simplify $\frac{x^2 - x - 6}{x^2 + 5x + 6}$.

20. The length of a rectangle is 3 inches more than twice its width. If the perimeter is 30 inches then the width of the rectangle is ...

21. Mary has two different kinds of clover in her garden. Some have three leaves and others have four leaves. Mary has a total of 218 clovers and these clovers have a total of 660 leaves. How many **four**-leaf clovers does Mary have?