Mathematics Placement Test
Practice Problems
Section I

The following questions are a sample of the types of problems you might see on the Mathematics Placement Test. **Calculators are not permitted for the test.**

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1. Express $\frac{5}{2} \times \left(\frac{1}{11} - \frac{1}{2} \right)$ as a single fraction.

2. Is $\frac{3}{5} < \frac{2}{3} < \frac{8}{14}$ true?

3. Factor the expression $3x^2 + 5x - 2$.

4. Simplify the expresssion $\sqrt{\frac{18x^5}{z^2}}$.

5. Expand $4(s + 2)$.

6. If $x - 1 = 2$, then what is $x + 1$?

7. If $x = 3$, then what is $x^2 + 3$?

8. Simplify the expression $13a - 15b - a + 2b$.

9. If $x = -4$ and $y = -7$, then what is $x - y$?

10. Simplify $\frac{(-2)(-6)}{-4}$.

11. Simplify $4 - (-2 + 5)$.

12. Simplify $(10)\left(\frac{1}{5}\right)(-2)(3)$.

13. Solve for p in the following inequality: $3p > p + 12$.

14. Simplify the following expression $(2x + 3) - (x - 2)$.

15. If $\frac{1}{3}$ of a number is 8, then what is $\frac{1}{4}$ of the number?

16. Given that $ax + b = 3$ and $a \neq 0$, solve for x.

17. Simplify $\frac{2x}{3y} \cdot \frac{9y}{4x^2}$.

18. Determine the slope of the line that passes through the points $(1, 1)$ and $(-3, -2)$.

19. Factor the expression $2x^2 - 7x + 6$.

20. Factor the expression $x^2 - 81$.

21. Simplify $(-2x^2)(3x^2y)(-y)$.

22. Simplify $(2x^5y^2)^2$.

23. Simplify $\frac{y}{x^3} \div \frac{y^3}{x}$.

24. If the sum of three numbers is 65 and one of the numbers is x, what is the sum of the other two?

25. Factor the expression $x^2 + x - 12$.

26. Factor the expression $xy^4 + yx^4$.

27. Determine all the x-vlaues that are solutions to $x^2 + x - 1 = 0$.

28. If $5(2x + 3) - (x + 3) = 0$, then what is x?

29. Expand $(2m + 3)^2$.

30. The average of x, y and z is 80. If two of the numbers are 74 and 78, then what is the other number?

31. Simplify the expression $4^2 + 4^0$.

32. Simplify $\sqrt{64x^{16}}$.

33. Simplify $\frac{6}{7} - \frac{1}{3}$.

34. Simplify $\frac{5}{7} \div \left(\frac{5}{9} + \frac{1}{7}\right)$.

35. Simplify $19.27 - 14.539$.

36. Simplify $(6.38)(0.542)$.

37. Simplify $\dfrac{15M^2 + 5M}{5M}$.

38. Simplify $\dfrac{7}{3} \times \dfrac{1}{2}$.

39. Evaluate $x^2y - 2xy - y^2$ when $x = -3$ and $y = -4$.

40. Solve for x in the equation $5x - 10 = 2 - 2x$.

41. Solve for x in the equation $x^2 - 1 = 0$.

42. Solve for x in the inequality $1 - 5x < 3 + x$.

43. Solve for x in the equation $\dfrac{5}{10} = \dfrac{15}{x}$.

44. Perform the indicated operation and simplify the expression $3x - (5x - 4)$.

45. Perform the indicated operation and simplify the expression $(x^2 - 2x + 2) - (4x^2 - 8x - 3)$.

46. Expand the expression $(4x - 5)(3x + 2)$.

47. Solve for x in the equation $x^2 - 3x + 1 = 0$.

48. Solve for a and b in the linear system

$$\begin{aligned} 3a + b &= 3, \\ a - 2b &= 1. \end{aligned}$$

49. Shade the region of the xy-plane described by $\{(x, y) \mid x + 2y \geq 1\}$.

50. Determine the equation for the line with slope $1/3$ that passes through the point $(3, -2)$.