

PRE-REQUISITE SKILLS FOR MATH 010

The following problems reflect the skills and understandings needed prior to beginning Math 010. You should be able to complete each of these problems easily without referring to a textbook. The answer is provided after the problem statement.

All problems should be completed without a calculator! It is expected you are able to work with fractions and decimals without a calculator. If you cannot, you will find it difficult to understand many of the Intermediate Algebra concepts and procedures.

If you have questions, you may want to consult a Basic Algebra or Arithmetic textbook.

1. Simplify $\frac{7}{12} - \frac{5}{18}$

Answer: $\frac{11}{36}$

2. Change to an improper fraction: $13\frac{1}{6}$

Answer: $\frac{79}{6}$

3. Combine: $4\frac{7}{12} - 1\frac{5}{6}$

Answer: $2\frac{3}{4}$

4. Determine the LCD for the following pair of fractions: $\frac{1}{18}$ and $\frac{13}{30}$

Answer: 90

5. Multiply: $\frac{3}{4} \times \frac{12}{5}$

Answer: $\frac{9}{5}$

6. Divide: $10 \div \frac{5}{7}$

Answer: 14

7. Divide: $4 \frac{1}{2} \div 1 \frac{5}{7}$

Answer: $2 \frac{5}{8}$

8. Simplify: $\frac{\frac{3}{4}}{\frac{1}{8}}$

Answer: 6

9. What is 0.06 % of 410?

Answer: 0.246

10. 6 is what percent of 120?

Answer: 5 %

11. Combine: $24.831 - 17.094$

Answer: 7.737

12. Write as a percent: 1.365

Answer: 136.5%

13. Evaluate: $\frac{-2}{3} + \left(\frac{-1}{4}\right)$

Answer: $\frac{-11}{12}$

14. Evaluate: $\frac{-7}{8} + \frac{1}{2}$

Answer: $\frac{-3}{8}$

15. Evaluate: $\frac{5}{6} - 4$

Answer: $\frac{-19}{6}$

16. Evaluate: $-2.4 \div (-0.6)$

Answer: 4

17. Evaluate: $\frac{\frac{7}{8}}{-21}$

Answer: $\frac{-1}{24}$

18. Evaluate: 3^2

Answer: 9

19. Evaluate: 3^{-2}

Answer: $\frac{1}{9}$

20. Evaluate: -3^2

Answer: -9

21. Multiply and Simplify: $-2x(4x - y - 6)$

Answer: $-8x^2 + 2xy + 12x$

22. Evaluate: $2x^2 + 3x$ for $x = -3$
Answer: 9
23. Evaluate: $18 - 5x$ for $x = -3$
Answer: 33
24. Factor: $3x - 6y$
Answer: $3(x - 2y)$
25. Factor: $x^2 - 2x$
Answer: $x(x - 2)$
26. Solve: $\frac{1}{3}x - 2 = 13$
Answer: $x = 45$
27. Solve: $54 - 2x = -8x$
Answer: $x = -9$
28. Solve: $\frac{x + 5}{7} = \frac{x}{4} + \frac{1}{2}$
Answer: $x = 2$
29. Solve for y : $5x - 6y = 6$
Answer: $y = \frac{5}{6}x - 1$
30. Solve: $7 - 8x \leq -6x - 5$
Answer: $x \geq 6$

31. Solve: $\frac{5x}{6} - 5 > \frac{x}{6} - 9$

Answer: $x > -6$

32. Write an expression for the following quantity where x represents the unknown. Five less than half a number.

Answer: $\frac{1}{2}x - 5$

WORD PROBLEMS:

33. Alice jogs 6 miles in 30 minutes, what is her average rate of speed in miles per hour?

Answer: 6 mph.

34. Four less than twice a number is the same as four times the number. Find the number.

Answer: $x = -2$

35. A rectangle has a length 6 more than half the width. The perimeter is 24 meters. Find its length.

Answer: 8 meters.

36. Due to a budget shortfall the State has laid off 9 % of its employees. The number of employees laid off was 6030. How many employees did the State have before these employees were laid off?

Answer: 67,000

37. The camera Tom wanted is on sale for 28 % off. The amount of the discount is \$100.80. What is the original price?

Answer: \$360.00

38. Find area of a circular sign whose radius is 7.00 ft. Round to nearest tenth.

Answer: 153.9 sq. ft.

39. A box has a volume of 1320 cubic meters. If the height is 11 and the width is 10 meters, find the length.

Answer: 12 meters

40. Find the diameter of a circle whose circumference is 25.12 meters (use $\pi \approx 3.14$)

Answer: 8 m