MATD 0370 - Elementary Algebra
Review for Pretest

This is a review of material that is covered in courses prior to MATD 0370 Elementary Algebra.

1. Graph $-3.2$ on the number line provided.

2. Graph $-5\frac{3}{4}$ on the number line provided.

3. True or false:
   (a) $-3 < -7$  
   (b) $5 \leq 5$  
   (c) $9 \geq -9$  
   (d) $-5 > -3$  
   (e) $-2 \geq -2$

4. Which symbol, $>$ or $<$, makes a true statement when placed in the blank between the given pairs of numbers?
   (a) $\frac{5}{5} \quad \_ \_ \_ 5.02$  
   (b) $-3.2 \quad \_ \_ \_ -3.3$  
   (c) $\frac{5}{16} \quad \_ \_ \_ \frac{7}{24}$  
   (d) $\frac{7}{8} \quad \_ \_ \_ \frac{5}{6}$  
   (e) $-3\frac{1}{4} \quad \_ \_ \_ -2\frac{3}{4}$

5. Arrange the numbers $-3.04$, $-3.1$, $-3.024$, and $-3.\overline{1}$ from smallest to largest.

6. Arrange the numbers $\frac{3}{4}$, $\frac{4}{5}$, and $\frac{5}{8}$ from smallest to largest.

7. Evaluate: $| -5 |$

8. Divide: $\frac{2}{3} \div \frac{5}{9}$

9. Add: $-\frac{7}{8} + \frac{5}{6}$

10. Subtract: $-3.02 - (-4.5)$

11. Multiply: $-8 \cdot 3\frac{1}{3}$

12. Divide: $-2.4 \div (-0.03)$

13. Evaluate: $-5^2$

14. Evaluate: $\left( -\frac{2}{3} \right)^3$

15. Evaluate: $(-1 - 2.1)^2$

16. Simplify: $5 - 2[-3 - 2(4 - 6)]$

17. Simplify: $-5 \cdot 4 - \frac{6 + 10}{3 + 1}$

18. Simplify: $-6^2 - (2 \cdot 4 - 6 + 2) - (-4)^2$

19. Subtract and simplify if possible: $\frac{8x}{10} - \frac{7x}{20}$
20. Combine like terms: \(-3x - 5 - 2x^2 + 7 + x^2 - x\)

21. Simplify: \(3(-4m + 7) - (5m - 6)\)

22. Solve: \(\frac{2}{3}x - 7 = 5\)

23. Solve: \(5.2 - 3s = s - 3.5\)

24. Solve: \(4\nu - (\nu - 2) = 7 - 2(3\nu - 4)\)

25. Write an expression to represent the expression "5 less than the product of 3 and a number". Let \(n\) represent the number.

26. Write an expression to represent the expression "the quotient of 3 more than a number and double the number". Let \(x\) represent the number.

27. Simplify: \((2c^4)^3\)

28. Evaluate \(2x^3 - 3x^2 + 5x - 9\) for \(x = -2\).

29. Add: \((3x^2 - 5x + 2) + (-x^2 + 7x - 8)\)

30. Subtract: \((-2x^2 + 4x - 7) - (8x - 10)\)

31. Multiply: \(-5t(4t^2 - 3t)\)

32. Reduce: \(\frac{-25x^3}{35x^2}\)

33. Express each of the following as the product of prime factors: (a) 42  (b) 48

34. Find the LCM for 42 and 48.

35. What number is 45\% of 62.4?

36. What percent of 36 is 4.5?

37. 240 is 160\% of what number?

38. The formula for the area of a circle is \(A = \pi \cdot r^2\). What is the area of a circle that has a radius of 6 inches? Use 3.14 for \(\pi\). Round your answer to the nearest tenth.

39. The sum of triple a number and 8 is \(-13\). What is the number?

40. The product of 7 and a number is 2 less than the number. What is the number?

41. If a recipe for sugar cookies requires \(\frac{1}{4}\) cups of flour to make 36 cookies, how much flour
would be needed to make 60 of the cookies?

42. At a particular college the ratio of men to women is 35 to 45. If there are 9135 women at the college, how many men are there at the college?

**Answers**
(Each answer is followed by the name of the topic that the problem is most closely associated with. If you get a wrong answer and want additional information on how to do the problem, look for this topic in the index of a prealgebra textbook.)

1. ![Number Line](image1)
   (plotting real numbers on a number line)

2. ![Number Line](image2)
   (plotting real numbers on a number line)

3. (a) False    (b) True    (c) True    (d) False    (e) True
   (ordering real numbers, less than, greater than)

4. (a) $>$    (b) $>$    (c) $>$    (d) $<$    (e) $<$
   (ordering real numbers, less than, greater than)

5. $-3.1$, $-3.04$, $-3.024$  (ordering real numbers, less than, greater than)

6. $\frac{5}{8}$, $\frac{3}{4}$, $\frac{4}{5}$  (ordering real numbers, less than, greater than)

7. 5  (absolute value)

8. $\frac{6}{5}$ or $1\frac{1}{5}$  (division of fractions)

9. $-\frac{1}{24}$  (addition of signed fractions)

10. 1.48  (addition of signed decimals)

11. $-26\frac{2}{3}$  (multiplication of signed fractions)

12. 80  (division of signed decimals)

13. $-25$  (exponents, order of operations)

14. $-\frac{8}{27}$  (exponents, multiplication of signed fractions)

15. 9.61  (exponents, multiplication of signed decimals)

16. 3  (order of operations)

17. $-24$  (order of operations)

18. $-57$  (order of operations)

19. $\frac{9x}{20}$  (combining like terms)

20. $-x^2 - 4x + 2$  (combining like terms)

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21. \(-17m + 27\) (distributive property, combining like terms)

22. 18 (linear equations with one variable)

24. \(\frac{13}{9}\) (linear equations with one variable)

26. \(\frac{x + 3}{2x}\) (translating English into algebra)

28. \(-47\) (evaluating polynomials)

30. \(-2x^2 - 4x + 3\) (subtracting polynomials)

32. \(-\frac{5x}{7}\) (reducing rational expressions)

33. (a) \(2 \cdot 3 \cdot 7\) (b) \(2^4 \cdot 3\) (factoring integers into primes)

34. 336 (least common multiple)

35. 28.08 (percentages)

36. 12.5\% (percentages)

37. 150 (percentages)

38. 113.0 in\(^2\) (evaluating formulas)

39. \(-7\) (applications of linear equations with one variable)

40. \(-\frac{1}{3}\) (applications of linear equations with one variable)

41. \(\frac{3}{4}\) cups (ratio and proportion)

42. 7105 men (ratio and proportion)