MATD 0370 - Elementary Algebra
Review for Pretest

1. Graph –3.2 on the number line provided.

$$\begin{array}{cccccccccccccccc} -7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$
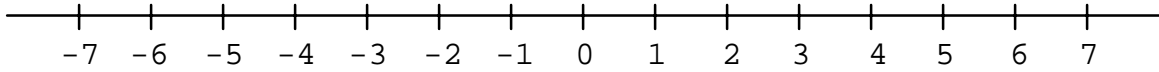
2. Graph $-5\frac{3}{4}$ on the number line provided.

$$\begin{array}{cccccccccccccccc} -7 & -6 & -5 & -4 & -3 & -2 & -1 & 0 & 1 & 2 & 3 & 4 & 5 & 6 & 7 \end{array}$$
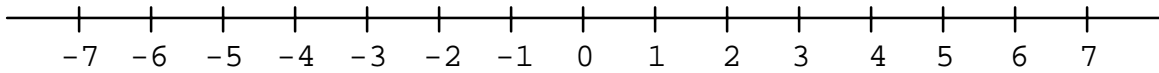
3. True or false:

(a) $-3 < -7$ (b) $5 \le 5$ (c) $9 \ge -9$ (d) $-5 > -3$ (e) $-2 \ge -2$

4. Which symbol, $>$ or $<$, makes a true statement when placed in the blank between the given pairs of numbers?

(a) $5\frac{1}{5}$ ___ 5.02 (b) -3.2 ___ -3.3 (c) $\frac{5}{16}$ ___ $\frac{7}{24}$ (d) $-\frac{7}{8}$ ___ $-\frac{5}{6}$ (e) $-3\frac{1}{4}$ ___ $-2\frac{3}{4}$

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: $\left| -5 \right|$

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: $-6^2 - (2 \cdot 4 - 6 \div 2) - (-4)^2$

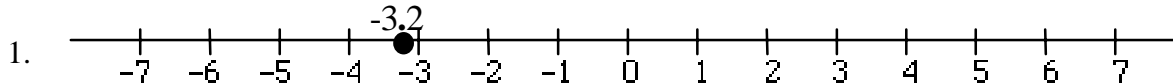19. Subtract and simplify if possible: $\frac{8x}{10} - \frac{7x}{20}$

20. Combine like terms: $-3x - 5 - 2x^2 + 7 + x^2 - x$

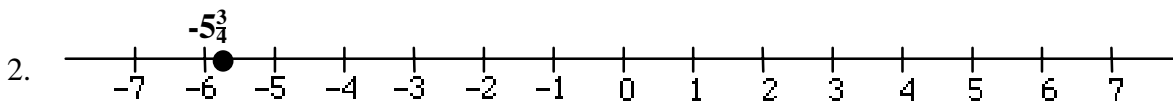21. Simplify: $3(-4m + 7) - (5m - 6)$

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

23. Solve: $5.2 - 3s = s - 3.5$

24. Solve: $4v - (v - 2) = 7 - 2(3v - 4)$

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: $\dfrac{-25x^3}{35x^2}$

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 π. 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 $2\frac{1}{4}$ 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.
-3.2

number line from -7 to 7 with a point plotted between -4 and -3 (at -3.2)

(plotting real numbers on a number line)

2.
$-5\frac{3}{4}$

number line from -7 to 7 with a point plotted between -6 and -5 (at -5¾)

(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. $-3.\overline{1}$, -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)

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

22. 18 (linear equations with one variable)

23. 2.175 (linear equations with one variable)

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

25. $3n - 5$ (translating English into algebra)

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

27. $8c^{12}$ (properties of exponents)

28. -47 (evaluating polynomials)

29. $2x^2 + 2x - 6$ (adding polynomials)

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

31. $-20t^3 + 15t^2$ (multiplying polynomials)

32. $\dfrac{-5x}{7}$ (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. $-\dfrac{1}{3}$ (applications of linear equations with one variable)

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

42. 7105 men (ratio and proportion)