

## Pre-Algebra Semester 1 Practice Exam A

1. Evaluate  $xy$  when  $x = 30$  and  $y = 6$ .

- A. 5
- B. 24
- C. 36
- D. 180

2. Which expression is equivalent to  $x^5$ ?

- A.  $5x$
- B.  $5 + x$
- C.  $x + x + x + x + x$
- D.  $x \cdot x \cdot x \cdot x \cdot x$

3. In math class, we follow the order of operations when evaluating expressions. Which is the second operation a student would perform to evaluate the expression below?

$$15 - 2 \cdot 3 + 4$$

- A. addition
- B. division
- C. subtraction
- D. multiplication

4. The table below shows the yardage gained and lost on the first 8 plays of a football game.

| Play | Yardage |
|------|---------|
| 1    | +7      |
| 2    | -3      |
| 3    | +1      |
| 4    | -8      |
| 5    | +5      |
| 6    | +6      |
| 7    | -4      |
| 8    | +2      |

What is the order of the yardage from least to greatest?

- A. -8, -4, -3, +1, +2, +5, +6, +7
- B. -8, +7, +6, +5, -4, -3, +2, +1
- C. +1, +2, -3, -4, +5, +6, +7, -8
- D. +7, -3, +1, -8, +5, +6, -4, +2

5. What is the value of  $|-10| + 4$ ?

- A. -14
- B. -6
- C. 6
- D. 14

## Pre-Algebra Semester 1 Practice Exam A

6. Eddie's savings account has a balance of \$140. He deposits \$17 for each of the next five weeks. He withdraws \$11 in the final week. He wants to use his savings to buy a game system that costs \$210.

- Does he have enough money to buy the game system?
- If yes, how much extra money does he have? If no, how much more does he need to save?

- A. NO, he needs \$4 more  
B. NO, he needs \$64 more  
C. YES, he has \$4 extra  
D. YES, he has \$26 extra

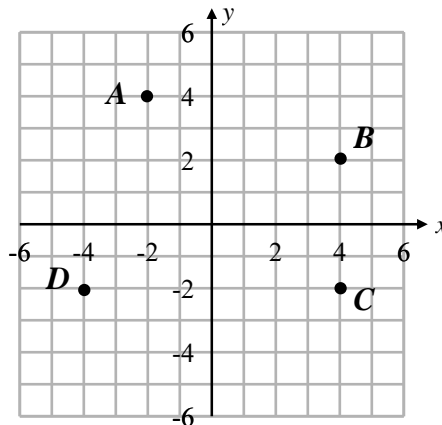
7. What is the value of  $-5 + 9$ ?

- A. -14  
B. -4  
C. 4  
D. 14

8. Calculate the value of  $12(-4)$ .

- A. -48  
B. -8  
C. 8  
D. 48

9. On the coordinate plane below, which point represents the coordinates  $(-4, -2)$ ?



- A. Point A  
B. Point B  
C. Point C  
D. Point D

10. Which equation illustrates the commutative property of multiplication?

- A.  $2 \cdot 5 = 5 \cdot 2$   
B.  $(2 \cdot 5) \cdot 3 = 2 \cdot (5 \cdot 3)$   
C.  $2(5 + 3) = 2(3 + 5)$   
D.  $2(5 + 3) = 2 \cdot 5 + 2 \cdot 3$

## Pre-Algebra Semester 1 Practice Exam A

11. A mathematics teacher wrote this procedure on the board.

Step 1:  $-3(x+7)+4x$

Step 2:  $-3x-21+4x$

Step 3:  $-3x+4x-21$

Step 4:  $x-21$

Which properties justify Step 2 and then Step 3?

- A. distributive property, commutative property
- B. distributive property, associative property
- C. commutative property, distributive property
- D. commutative property, associative property

12. Which expression below shows a correct use of the distributive property?

$$5a + 7 - 3(a + 4)$$

- A.  $5a + 7 - 3a + 12$
- B.  $5a + 7 - 3a - 12$
- C.  $5a + 7 - 3a + 4$
- D.  $5a + 7 - 3a + 1$

13. Simplify the expression below.

$$-5(k-7)-k+3$$

- A.  $-6k-4$
- B.  $-6k+38$
- C.  $-5k-4$
- D.  $-5k+38$

14. Alicia is paid  $y$  dollars per hour for the first 40 hours of work, plus she earns time-and-a-half pay for every hour worked over 40 hours. Write an expression in terms of  $y$  to find Alicia's total pay if she worked 55 hours in one week?

- A.  $40y + 15(1.5y)$
- B.  $40y + 15(y + 1.5)$
- C.  $40y + 55(1.5y)$
- D.  $40y + 55(y + 1.5)$

15. In which of the following is the given value for the variable a solution of the equation?

- A.  $a + 9 = 12$ ,  $a = -3$
- B.  $21 - b = -4$ ,  $b = 25$
- C.  $91 = 7c$ ,  $c = 14$
- D.  $\frac{d}{-4} = -8$ ,  $d = -32$

16. Solve for  $x$  in the equation below.

$$39 - x = 15$$

- A.  $-54$
- B.  $-24$
- C.  $24$
- D.  $54$

## Pre-Algebra Semester 1 Practice Exam A

17. Find the value of  $w$  that satisfies the equation below.

$$\frac{w}{-3} = 21$$

- A. -63
- B. -7
- C. 7
- D. 63

18. Solve for  $d$  in the equation below.

$$9 = d + 4.88$$

- A. 13.88
- B. 5.88
- C. 5.12
- D. 4.12

19. Which of the following would be the best choice for the first step in solving for  $b$  in the equation below?

$$-8 + 2b = 20$$

- A. add 8 to both sides of the equation
- B. subtract 8 from both sides of the equation
- C. multiply both sides of the equation by 2
- D. divide both sides of the equation by  $-2$

20. What is the value of  $x$  that satisfies the equation  $-5x + 10 = 35$ ?

- A. 5
- B. -5
- C. -9
- D. -17

21. Nine less than twice a number is thirty-one. What is the number?

- A. -20
- B. -11
- C. 11
- D. 20

22. What is the solution to the equation below?

$$-2(3x + 1) + 7x = 12$$

- A. 10
- B. 11
- C. 13
- D. 14

23. What value of  $x$  makes the equation below true?

$$3x + 2 = 8x - 13$$

- A. 3
- B. 1
- C.  $\frac{-11}{5}$
- D. -3

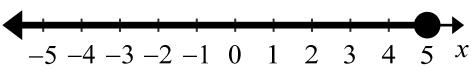
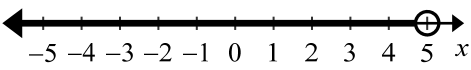
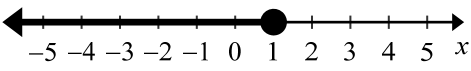
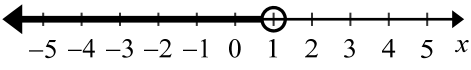
## Pre-Algebra Semester 1 Practice Exam A

24. A gym charges nonmembers \$18 per day to use the tennis courts plus \$7 per day to rent equipment. Members pay \$600 annual dues plus \$5 per day for equipment rental. How many days must a nonmember and a member of the gym use the tennis courts in one year so that they both pay the same amount?

- A. 20 days
- B. 26 days
- C. 30 days
- D. 46 days

25. Which number line represents the solution of the inequality below?

$$-2 + x \leq 3$$

- A. 
- B. 
- C. 
- D. 

26. Solve the inequality for  $x$ .

$$-8x \leq -40$$

- A.  $x \geq 5$
- B.  $x \leq 5$
- C.  $x \geq -5$
- D.  $x \leq -5$

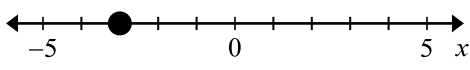
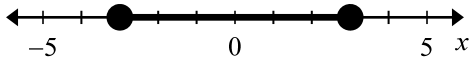
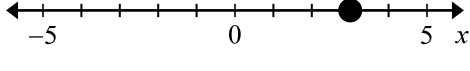
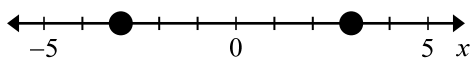
27. What values of  $x$  satisfy the inequality below?

$$\frac{x}{3} - 2 < -11$$

- A.  $x < -3$
- B.  $x > -3$
- C.  $x < -27$
- D.  $x > -27$

28. Which number line represents the solution(s) to the equation below?

$$|x| = 3$$

- A. 
- B. 
- C. 
- D. 

29. What is the prime factorization of 36?

- A.  $2 \cdot 3^2$
- B.  $2^2 \cdot 3^2$
- C.  $6^2$
- D.  $18^2$

## Pre-Algebra Semester 1 Practice Exam A

30. Find the greatest common factor (GCF) of  $9x^3y$  and  $15x^2y^2$ .

- A.  $45x^5y^3$
- B.  $45x^2y$
- C.  $3x^5y^3$
- D.  $3x^2y$

31. Write the fraction below in simplest form.

$$\frac{12a^3b^2}{30ab^3}$$

- A.  $\frac{2a^2}{5b}$
- B.  $\frac{2a^4}{5b^5}$
- C.  $\frac{4a^2}{10b}$
- D.  $\frac{4a^4}{10b^5}$

32. Find the least common multiple (LCM) of  $6x^2y^2$  and  $12x^4y$ .

- A.  $6x^2y$
- B.  $6x^4y^2$
- C.  $12x^2y^2$
- D.  $12x^4y^2$

33. What is  $2.78 \times 10^{-5}$  written in standard form?

- A. 0.00000278
- B. 0.0000278
- C. 27,800
- D. 278,000

34. What is 240,000 written in scientific notation?

- A.  $2.4 \times 10^{-5}$
- B.  $2.4 \times 10^{-4}$
- C.  $2.4 \times 10^4$
- D.  $2.4 \times 10^5$

35. Which number is NOT equivalent to  $2\frac{1}{3}$ ?

- A.  $2\bar{3}$
- B. 2.3
- C.  $2\frac{3}{9}$
- D.  $\frac{7}{3}$

## Pre-Algebra Semester 1 Practice Exam A

36. What fraction is equivalent to 0.625?

- A.  $\frac{25}{4}$
- B.  $\frac{13}{20}$
- C.  $\frac{5}{8}$
- D.  $\frac{1}{16}$

37. What is the decimal equivalent of  $\frac{11}{3}$ ?

- A.  $0.\overline{27}$
- B.  $0.2\overline{7}$
- C. 3.6
- D.  $3.\overline{6}$

38. Which set of numbers is ordered from least to greatest?

- A.  $-3.2, -\frac{30}{10}, \frac{7}{8}, 0.\overline{9}, 0.9$
- B.  $-3.2, -\frac{30}{10}, \frac{7}{8}, 0.9, 0.\overline{9}$
- C.  $-\frac{30}{10}, -3.2, \frac{7}{8}, 0.9, 0.\overline{9}$
- D.  $-\frac{30}{10}, -3.2, 0.\overline{9}, 0.9, \frac{7}{8}$

39. Chelsea leaves her house and goes directly toward the mall. She has  $1\frac{3}{4}$  miles to go before arriving at her destination. The distance between her house and the mall is  $7\frac{1}{2}$  miles. How far has she traveled from her house?

- A.  $9\frac{1}{4}$  miles
- B.  $6\frac{3}{4}$  miles
- C.  $6\frac{1}{4}$  miles
- D.  $5\frac{3}{4}$  miles

40. Evaluate  $\frac{x}{y}$  if  $x = 1\frac{2}{3}$  and  $y = -4\frac{1}{6}$ .

- A.  $-\frac{125}{18}$
- B.  $-\frac{2}{5}$
- C.  $\frac{2}{5}$
- D.  $\frac{125}{18}$

## Pre-Algebra Semester 1 Practice Exam A

41. Linda has a ribbon that is  $16\frac{2}{3}$  feet long.  
If she cuts the ribbon into 20 equal pieces, what is the length of each piece?

- A.  $\frac{4}{5}$  feet
- B.  $\frac{5}{6}$  feet
- C.  $3\frac{1}{3}$  feet
- D.  $4\frac{2}{3}$  feet

42. Solve the given equation for  $x$ .

$$-\frac{x}{4} = \frac{7}{2}$$

- A. -14
- B.  $-\frac{7}{8}$
- C.  $\frac{7}{8}$
- D. 14

43. Which process was used to obtain the inequality shown in step 2?

Step 1:  $\frac{x}{4} + \frac{1}{5} < 2$

Step 2:  $5x + 4 < 40$

- A. subtracted  $\frac{1}{5}$  from both sides of the inequality
- B. added 38 to both sides of the inequality
- C. multiplied both sides of the inequality by 20
- D. divided both sides of the inequality by 20

44. Travis has a choice of two sizes of strawberry jam at the grocery store. The 8-ounce jar costs \$2.53, while the 16-ounce jar costs \$4.88. If he rounds to the nearest cent, which is the more economical buy and why?

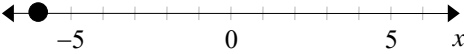
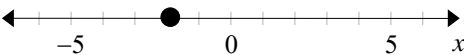
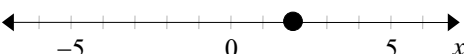
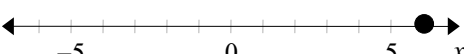
- A. The 8-ounce, because it's priced at 31 cents per ounce
- B. The 8-ounce, because it's priced at 32 cents per ounce
- C. The 16-ounce, because it's priced at 31 cents per ounce
- D. The 16-ounce, because it's priced at 32 cents per ounce

45. Lance and 3 friends go to the movie. If the total cost of the tickets is \$33, how much did each movie ticket cost?

- A. \$8.20
- B. \$8.25
- C. \$10.00
- D. \$11.00

46. Which number line represents the solution of the equation below?

$$-2x + 2 = 6$$

- A. 
- B. 
- C. 
- D. 

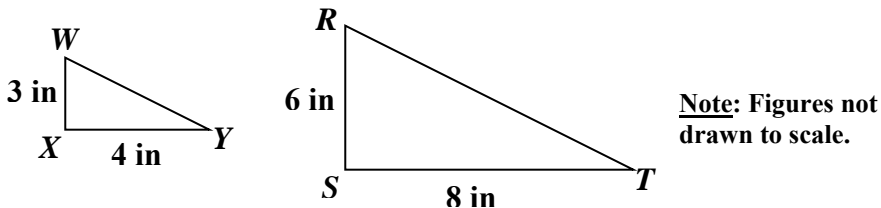


## Pre-Algebra 8 Semester 1 Practice Exam A

47. A train travels 255 miles in 3 hours. How far will the train travel in 5 hours at the same rate?

- A. 510 miles
- B. 425 miles
- C. 153 miles
- D. 85 miles

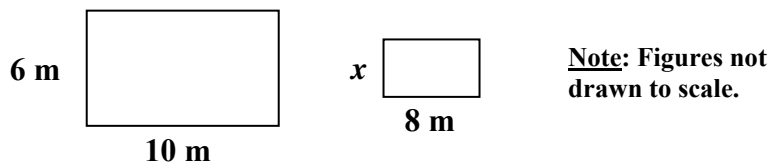
48. Triangle  $WXY$  is similar to triangle  $RST$  shown below.



Which proportion describes the relationship between corresponding sides of the triangles?

- A.  $\frac{XY}{ST} = \frac{8}{4}$
- B.  $\frac{XY}{RS} = \frac{4}{6}$
- C.  $\frac{WX}{RS} = \frac{3}{6}$
- D.  $\frac{WX}{ST} = \frac{3}{8}$

49. The two rectangles shown below are similar.



What is the length of side  $x$ ?

- A. 4.8 m
- B. 7.5 m
- C. 8.0 m
- D. 13.3 m

## Pre-Algebra 8 Semester 1 Practice Exam A

---

50. A student that is 5 feet tall casts a shadow  $3\frac{1}{2}$  feet long. At the same time, a nearby tree casts a shadow 14 feet long. What is the height of the tree?

- A. 9.8 feet
- B. 12.5 feet
- C. 20.0 feet
- D. 31.5 feet



**Pre-Algebra Semester 1 Practice Exam A  
Free Response**

---

1. A student believes  $7.3 \times 10^4$  represents a number that is 80 times larger than the number represented by  $7.3 \times 10^{-4}$ . What error is this student making? Please show all work and explain your reasoning.

**Pre-Algebra Semester 1 Practice Exam A  
Free Response**

---

2. A local ski resort charges \$55.00 for an all-day ski pass and \$45.00 for equipment rentals. Liam can purchase all necessary ski equipment at a local sporting goods store for \$450.00 along with a discounted season ski pass for an additional \$300.00.

How many times would Liam need to go skiing in order for the cost of buying ski equipment and a discounted season ski pass to be less expensive than renting equipment and paying the \$55.00 daily ski pass price? Please show all work and explain your reasoning.

**Pre-Algebra Semester 1 Practice Exam A  
Free Response**

---

3. The students in the Math Club are going to sell juice as a fundraiser. They need  $3\frac{1}{2}$  cups of juice to make 15 servings. The students will be selling the juice for 4 days and plan to sell 75 servings of juice each day.
- A. How many cups of juice will be needed for the 4 days? Please show all work and explain your reasoning.
- B. Juice is sold in half-gallon jugs. How many jugs of juice will the students need to purchase? Please show all work and explain your reasoning. (1 gallon = 16 cups)

