Pre-Algebra Summer Review

Type *your answer in the blank at the right of each problem.*

21. Evaluate $ab + c$ if $a = 3$, $b = 2$, and $c = 7$. **21.**

22. Evaluate 3^3. **22.**

23. Find $\frac{4}{7} \times 2\frac{5}{8}$. **23.**

24. Solve $-64 \div (-16) = a$. **24.**

25. Write 5×10^{-4} in standard form. **25.**

26. Classify an angle of 83° as *acute*, *obtuse*, *right*, or *straight*. **26.**

27. Solve the proportion $\frac{5}{t} = \frac{12}{15}$. **27.**

28. Express 180 miles on six gallons as a unit rate. **28.**

29. Express 54.5% as a decimal. **29.**

30. Ngyen has 1 spring coat, 1 winter coat, 3 hats, and 2 pairs of gloves. How many different outfits of coat, hat, and gloves can Ngyen make? **30.**

31. Find $\frac{3}{4} + \frac{5}{8}$. **31.**

32. Solve $-2 - 3y = 22$. **32.**

33. A carpenter charges $20 for an estimate plus an additional $25 an hour for each hour she works. How much will it cost you to have 6 hours of work done? **33.**

Type ***your answer in the blank at the right of each problem.***

19. A plumber charges \$30 to come to the house and \$35 for each hour spent on the job. Write an equation to determine the number of hours worked if the plumber's bill is \$240.

A. $30h + 35 = 240$ **B.** $35h + 30 = 240$

C. $(30 + 35)h = 240$ **D.** $30h = 240 - 35$ **19.**

20. Choose the inequality that represents *Five more than the product of 6 and a number is at least 71.* Then solve.

A. $11 + n > 71, n > 60$ **B.** $6n + 5 \geq 71, n \geq 11$

C. $\frac{n}{6} + 5 \geq 71, n \geq 396$ **D.** $5 + 6n < 71, n < 11$ **20.**

21. Evaluate $\frac{3(2a - 3k)}{m - 3}$ if $a = 8$, $k = 4$, and $m = 5$. **21.**

22. Name the property shown by $19a + k = k + 19a$. **22.**

23. Solve $10 + 5x = 135$. **23.**

24. The gatekeepers at the stadium estimate that 500 fewer fans came to last week's football game than the number of fans that attended this week's game. If 1650 fans attended last week's game, how many fans attended this week's game? **24.**

25. Name the quadrant in which the graph of (x, y) lies given that $x > 0, y < 0$. **25.**

26. Replace ● with $<$, $>$, or $=$ to make -3 ● -4 a true sentence. **26.**

27. Find the next number in the pattern 237, 234, 228, 219, ... **27.**

28. Solve $x = (-5)(-25)$. **28.**

29. Solve $\frac{m}{-4} = -24$. **29.**

30. Tony has to replace the bottom panel in a door. The panel is shaped like a square measuring 24 inches on a side. Find the area of the panel Tony must buy. **30.**

31. Loretta is putting a fence around her garden. The garden is shaped like a rectangle 25 feet wide and 35 feet long. How many feet of fencing does Loretta need? **31.**

32. Solve $\frac{x}{-12} > 12$. **32**

33. Evaluate $3x^3$ if $x = 4$. **33**

34. Find the GCF of $15a^4b^2$ and $35a^3b^6$. **34**

35. Write $\frac{19mk^3}{57mk}$ in simplest form. **35**

36. Find the product $(3^6)(3)(3^5)$. **36**

37. Molesha receives three checks in the amounts of \$482.86, \$379.28, and \$14.75. Find the total amount of the checks. **37.**

38. Solve $b = 3\frac{3}{5} - 1\frac{3}{10}$. **38.**

39. Solve $-2.6 + x > -4$. **39.**

40. Find the 9th term of the arithmetic sequence 32, 38, 44, 50, ... **40.**

41. Solve $y = \left(2\frac{3}{5}\right)\left(-\frac{2}{3}\right)$. **41.**

42. Solve $m = (2.8)(3.04)$. **42.**

43. Solve $z = 10.582 \div 2.6$. **43.**

44. Solve $\frac{b}{5} > -4.3$. **44.**

45. Mei read that the approximate distance between the sun and Earth is 93 million miles. Write this number in scientific notation. **45.**

46. Solve $-5k - 6 = 9$. **46.**

47. Mark's cart has a wheel that measures 21 inches in diameter. Find the circumference of the wheel. Use $\pi \approx 3.14$. **47.**

48. Solve $8(x - 1) + 4 = 9x - 8$. **48.**

49. Solve $-2(k + 4) < 12$. **49.**

50. In geology class, Sharon measures a crystal. The length of the crystal is 6 centimeters. How many millimeters long is the crystal? **50.**

Kira earned these test scores in history: 75, 80, 80, 80, 85, 85, 88, 90, 97, and 100.

48. Find the median of the test scores. **48.**

49. Find the range of the test scores. **49.**

50. Find the mode of the test scores. **50.**

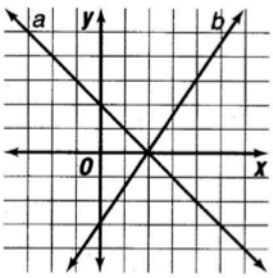
51. Write 4.86×10^{10} in standard notation. **51.**

52. Janice buys \$25 worth of non-taxable items and some other items taxed at 5%. Her total bill is \$41.80. Write an equation to find the cost of the taxable items. **52.**

53. Solve $3y + (-15) = 8y - 5$. **53.**

54. Solve $8x - 2 < 30$. **54.**

55. What is the equation of line b in the graph at the right? **55.**



56. Find the solution of the system of equations in the graph at the right. **56.**

57. Find the y-intercept of the graph of $y = -3x - 5$. **57.**

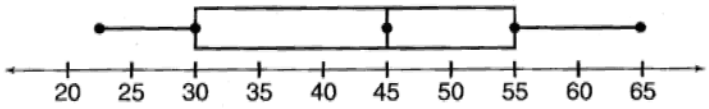
58. Sondra has 10 blue, 6 yellow, 4 purple, and 8 red barrettes in a drawer. If she chooses one without looking, what is the probability she will pick a red barrette? **58.**

59. A fertilizer is spread at a rate of 30 pounds for 5000 ft^2. How many pounds are needed for 17,500 ft^2? **59.**

60. Express $\frac{1}{4}$ as a percent. **60.**

61. What percent of 30 is 6? **61.**

62. The box-and-whisker plot shows the ages of volunteers answering phones at a public television fund drive. Half of the volunteers are under what age? **62**



Ages of Volunteers

63. Find the value of 4!. **63.**

64. A die is rolled. What is the probability of rolling a prime number? **64.**

65. In $\triangle ABC$, the measure of $\angle B$ is 41°, and the measure of $\angle C$ is 52°. Find the measure of $\angle A$. **65.**

66. Courtney has a photo of herself and her dog. Her image is 2.5 inches high and the image of the dog is 0.5 inches high. Courtney is 5.5 feet tall. How tall is the dog? **66.**

67. In quadrilateral $ABCD$, $m\angle A = 155°$, $m\angle B = 56°$, and $m\angle C = 58°$. Find $m\angle D$. **67.**

68. Find the area of a parallelogram with a base of 18 centimeters and a height of 12 centimeters. **68.**

69. Find the surface area of a cube with an edge 12 centimeters long. **69.**

70. John shapes wafer cones for ice cream treats. The finished cones are 3 inches in diameter and 6 inches high. Find the volume of the cone. Use $\pi \approx 3.14$. **70.**

71. Marcus bikes 9 miles south and then 12 miles east. How many miles is he from where he began? Round the answer to the nearest tenth. **71.**

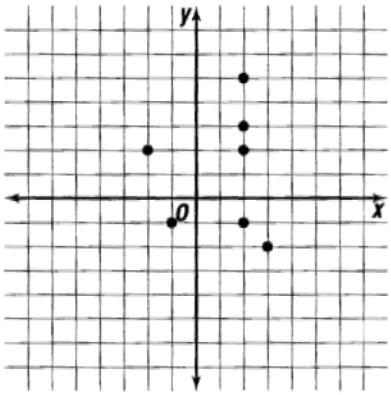
72. The length of the hypotenuse of a 30°–60° right triangle is 12 centimeters. Find the length of the side opposite the 30° angle. **72.**

73. Find the measure of $\angle A$ given that $\tan A = 4.0108$. **73.**

74. Simplify $(2^3)^2$. **74.**

75. Find the product $(3x - 5)(2x + 5)$. **75.**

Use the graph at the right for Exercises 1–3.

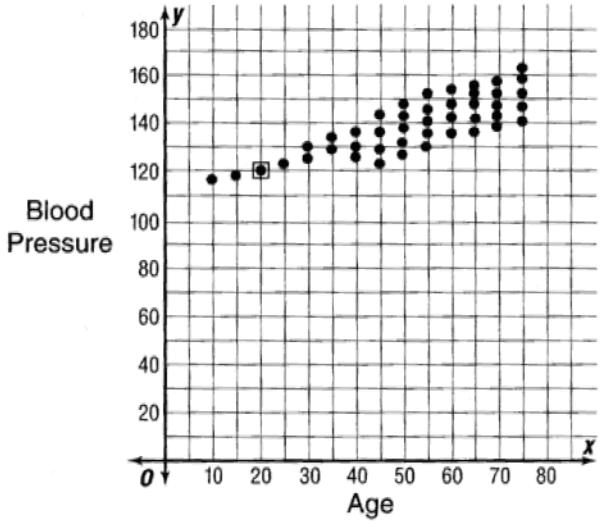


1. Express the relation shown in the graph as a set of ordered pairs. **1.**

2. State the domain and range of the relation. **2.**

3. Determine whether the relation is a function. Explain. **3.**

The scatter plot at the right shows the blood pressure of people at different ages. Use the scatter plot for Exercises 4–6.



4. Determine the relationship shown by the scatter plot. **4.**

5. What does the point with the box around it represent? **5.**

6. What age(s) show the largest variations in blood pressure? **6.**

7. Determine whether the relation represented by the equation $y + \frac{3}{2}x = 5$ is a function. Explain. **7.**

Graph each equation on a separate paper.

8. $3x + y = 3$ **8.**

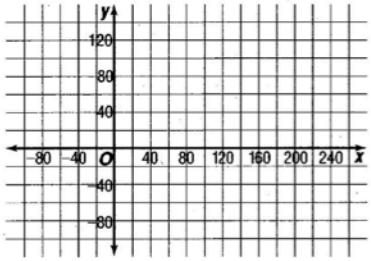
9. $2x + y = 2$ **9.**

10. $y = 3x + 2$ **10.**

11. Find four solutions of $7x + 2y = 5$. **11.**

12. If $f(x) = 0.5x - 3$, find $f(-3)$, $f(0)$, and $f(2)$. **12.**

The ordered pairs (32, 0) and (212, 100) are solutions to the equation for the conversion of one temperature scale to another (°C to °F or °F to °C). Graph this relation at the right, and use it to for Exercises 13–15.



13. Normal body temperature is 98.6°F. What is this temperature in °C? **13.**

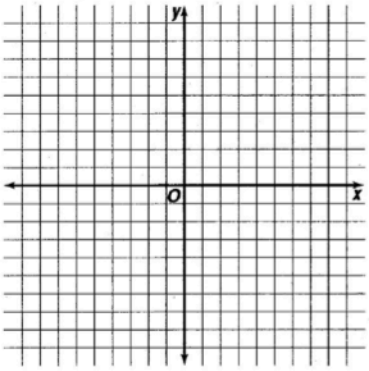
14. At what point are the Celsius and Fahrenheit temperatures the same numerical value? **14.**

15. Determine the slope of the line. **15.**

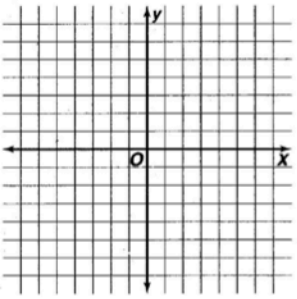
16. Find the slope of the line that contains $A(4, 5)$ and $B(-1, -5)$. **16**

17. Find the x- and y-intercepts for the graph of $y = 5 + 2x$. **17.**

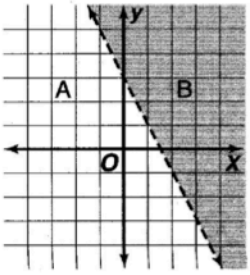
18. Graph the system of equations $y = \frac{x}{4} - 2$ and $y + x = 3$ on the grid at the right. Determine the solution. **18.**



19. Graph $y < 3x + 2$ on the grid at the right. **19.**



20. Determine which region, A or B, is the graph of the inequality $y < 3 - 2x$. **20.**



1. Emma has 48 pairs of fancy dress shoes in her shoe boutique. There are twice as many black pairs as red, and four more white pairs than red. How many pairs of each color does she have? 1.

2. A certain bacterium doubles its population every 12 hours. After 4 full days, there are 12,800 bacteria. How many bacteria were there at the beginning of the first day? 2.

3. Roberto studied for 90 minutes, practiced the piano for 60 minutes, and then read for 30 minutes. When he finished reading, it was 6:30 P.M. At what time did Roberto begin studying? 3.

Solve each equation. Check your solution.

4. $5x + 4 = 34$ 4.

5. $4y - 9 = 35$ 5.

6. $\frac{m+3}{4} = 11$ 6.

7. $\frac{n}{2} + 9 = 2$ 7.

8. $-7x + 8 = 15$ 8.

9. $-8c - 20 = -36$ 9.

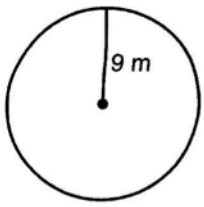
10. $\frac{x}{5} + 17 = 15$ 10.

11. $\frac{y}{3} - 27 = -23$ 11.

Find the circumference of each circle described below.

12. The diameter is 25.5 centimeters. 12.

13. The radius is 7.5 inches. 13.

14. 

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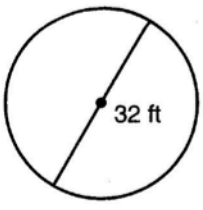
15. 

15.

Solve each equation. Check your solution.

16. $x + 14 = 3x - 4$ **16.**

17. $7y - 15 = 5y + 3$ **17.**

18. $6z + 9 = 13z - 12$ **18.**

19. $5.7d - 2 = 3.2d - 8$ **19.**

20. $15b + 32 = 19b + 28$ **20.**

21. $3(h - 7) = 66h$ **21.**

22. $5(x - 11) = 3(x + 29)$ **22.**

Solve each inequality and check your solution.

23. $9x + 5 < 50$ **23.**

24. $-\frac{1}{3}y - 7 < 18$ **24.**

25. $4x + 5 < 7x - 4$ **25.**

26. $-4(x - 3) > 24$ **26.**

27. $2y + 4 > 3y - 7$ **27.**

28. The sum of an integer and the next greater integer is at least 27. Find the lesser integer. **28.**

29. If 12 times an integer is decreased by 18, the result is less than 78. Find the integer. **29.**

Complete each sentence.

30. 17 m = _?_ cm **30.**

31. 750 g = _?_ kg **31.**

32. 1375 mL = _?_ L **32.**

33. 392 mm = _?_ cm **33.**

1. Find the value of $(36 - 15) \div 7$. (Lesson 1-2) **1.**

2. Evaluate $\frac{4(x - 5)}{y}$ if $x = 9$, and $y = 4$. (Lesson 1-3) **2.**

3. Name the property shown by $(9 \cdot 4) \cdot 5 = (4 \cdot 9) \cdot 5$. (Lesson 1-4) **3.**

4. Simplify $7(x + y) + 4(3x + 2y)$. (Lesson 1-5) **4.**

5. Solve $99 = 11x$ mentally. (Lesson 1-6) **5.**

Simplify. (Lessons 2-1, 2-4, 2-5, 2-7, 2-8)

6. $19 - (-5)$ **6.**

7. $-7m + (-13m)$ **7.**

8. $15y - (-12y)$ **8.**

9. $-3 \cdot (-5) \cdot (-11)$ **9.**

10. $384 \div (-16)$ **10.**

Solve each equation. (Lessons 3-2 and 3-3)

11. $a + 32 = 4$ **11.**

12. $\frac{m}{-13} = 17$ **12.**

13. Jerome and Shan Li have a rectangular swimming pool with a length of 25 feet and a width of 10 feet. Find the perimeter of their pool. (Lesson 3-5) **13.**

Solve each inequality. (Lessons 3-6 and 3-7)

14. $x + 11 > 5$ **14.**

15. $\frac{y}{-2} \geq 12$ **15.**

16. State whether 350 is divisible by 2, 3, 5, 6, or 10. (Lesson 4-1) **16.**

17. Evaluate n^7, if $n = 2$. (Lesson 4-2) **17.**

18. Write the prime factorization of 216. (Lesson 4-4) **18.**

19. Find the GCF for 24 and 40. (Lesson 4-5) **19.**

20. What is the LCM for 12 and 18? (Lesson 4-7) **20.**

Express each decimal as a fraction in simplest form. (Lesson 5-1)

21. 0.36 **21.**

22. $0.\overline{04}$ **22.**

Solve each equation. (Lessons 5-4 and 5-5)

23. $d = \frac{7}{9} + \frac{5}{9}$ **23.**

24. $y + \frac{1}{4} = \frac{2}{3}$ **24.**

25. Find the 21st term of the arithmetic sequence 97, 92, 87, 82, ... (Lesson 5-9) **25.**

Simplify each expression. (Lessons 1-5, 2-8)

1. $15b + 7b + 3$ **1.**

2. $-136 \div (-8)$ **2.**

Solve each equation or inequality. (Lessons 3-4, 3-6)

3. $A = \frac{5}{2}sa$ if $s = 18$ inches, and $a = 12.4$ inches. **3.**

4. $-15 \leq y - 9$ **4.**

5. Find the prime factorization of 512. (Lesson 4-4) **5.**

6. Find the GCF of $8x^2y$ and $18x^2y^2z$. (Lesson 4-5) **6.**

Solve each equation or inequality. (Lessons 5-5, 5-7)

7. $x = 5\frac{2}{3} - \frac{14}{21}$ **7.**

8. $y - \frac{2}{3} > 5$ **8.**

9. Write the next three terms of 9, 11.5, 14, 16.5, $\cdots$. (Lesson 5-9) **9.**

Solve each equation. (Lessons 6-3, 6-4, 6-5)

10. $x = \frac{7}{9} \cdot \frac{6}{7}$ **10.**

11. $6\frac{2}{3} \div 3\frac{3}{4} = a$ **11.**

12. $z = 4.32 \div 1.8$ **12.**

13. Write 602,000,000,000,000,000,000,000 in scientific notation. (Lesson 6-9) **13.**

14. Solve $90 - 12y = -90$. (Lesson 7-2) **14.**

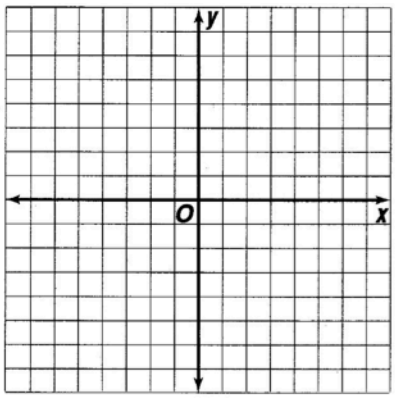
15. Find the diameter of a circle with a circumference of 62.8 meters. (Lesson 7-4) **15.**

16. Solve $-4(x + 9) = -12x - 4$. (Lesson 7-5) **16.**

17. Convert 12.8 liters to milliliters. (Lesson 7-8) **17.**

18. State the domain and range of the relation {(−2.3, 4), (5, −3.2), (−4.6, 3.3)}. (Lesson 8-1) **18.**

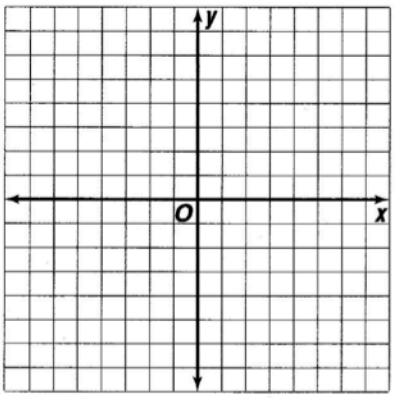
19. Graph $x + y - 2$ on the grid below. (Lesson 8-3)



Describe the graph below:

20. Determine whether the relation described by $f(n) = \frac{5}{9}(n - 32)$ is a function. (Lesson 8-4) **20.**

21. Graph $y > -4x - 3$ on the grid below. (Lesson 8-9)



Describe the graph below:

22. Express the ratio 56 : 168 as a fraction in simplest form. (Lesson 9-1) **22.**

23. Solve the proportion $\frac{x}{8} = \frac{7}{9}$. (Lesson 9-4) **23.**

24. What is 40% of 40? (Lesson 9-5) **24.**

25. 34 is 25% of what number? (Lesson 9-9) **25.**