**Inequalities**

**Solve**

**1.** $-6\left(x-3\right)\leq 42$

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

**3.** $6-\left(2w+5\right)\leq 3$

A. $w<1$ B. $w\geq -1$ C. $w\geq -2$ D. $w\leq -1$

**4.** $-14>5\left(2m-3\right)-m.$

 A. $m<1$ B. $m<\frac{1}{9}$ C. $m>1$ D. $m>\frac{1}{9}$

**5.** $\frac{5}{14}>\frac{-2}{7}d$

 A. $d<\frac{5}{4}$ B. $d>\frac{5}{4}$ C. $d<-\frac{5}{4}$ D. $d>-\frac{5}{4}$

**Solve and graph on a number line.**



**6.** $-3x-7<2$



**7.** $8\geq x+4>3$



**8.** $2x+1>9$ or $3x-5<4$



**9.** $\left|3x+4\right|-6\geq 14$

**Sketch the graph of the inequality.**

**10.** $y>2x+1$ **11.** $y<\frac{1}{2}x-3$



**12.** $y<-2$

**13.** A gym membership costs $50 a month. If you are not a member, it costs $5 a day. How many times

 do you need to go to the gym in a month to save money by getting a membership?

**Systems of Equations**

**Is each ordered pair a solution of the system of linear equations?**

**14.** $-2x+3y=5$

 $3x+2y=12$



**15.** $2x+5y=23$

 $-2x+3y=1$

**Graph and check to solve the linear system.**

**16.** $6x-3y=-15$ **17.** $-x+y=4$

$2x+y=-3$ $2x+y=7$



**Solve the linear system.**

**18.** $ x+y=4$ $x=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $y=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 $-5x+2y=-6$

**19.** $ 3x=9$ $x=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $y=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 $-x+2y=9$

**20.** $x+y=3$ $x=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $y=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 $x+2y=6$

**21.** $x+y=7$ $x=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ $y=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 $y=-2x+8$

**Applications. Solve using systems of equations.**

**22.** A music store is selling compact discs for $11.50 and $7.50. You buy 12 discs and spend a total

 of $106. How many compact discs that cost $11.50 did you buy?

**23.** You are selling tickets for a high school concert. Student tickets cost $4 and general admission

 tickets cost $6. You sell 450 tickets and collect $2340. How many of each type of ticket did you sell?

**24.** Your school committee is planning an after-school trip by 193 people to a competition at

 another school. There are eight drivers available and two types of vehicles, school buses and

 minivans. The school buses seat 51 people each, and the minivans seat 8 people each. How

 many buses and minivans will be needed?

**Solve the system using the method of your choice and tell how many solutions the system has.**

**25.** $2x+y=5$

 $2y+4x=-5$

**26.** $4y=x+4$

 $3x-12y=-12$

**Simplify**

27.  28. 

29. $7x^{-5}y^{-2}=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$ 30. 

31.  32. 

33. **Simplify:** 

 A.  B.  C.  D. 

34. **Simplify:** 

 A.  B.  C.  D. 

35. **Simplify:** 

 A. $y^{9}$ B. $y^{8}$ C. $y^{15}$ D. $y^{16}$

36. **Simplify:** 

 A.  B. 

 C.  D. 

37. **Simplify:** 

38. **Simplify:** 

39. **Simplify:** 

 A. $4x-14$ B. $-8x$ C. $-8x-14$ D. $4x$

40. **Simplify:** 

41. **Simplify:** 

42. **Simplify:** 

43. **Simplify:** $\left(5x-2\right)\left(5x-2\right)=$

 A. $10x^{2}+4$ B. $25x^{2}+4$

 C. $25x^{2}-20x+4$ D. $25x^{2}+20x+4$

44. **Simplify:** $\left(7x-5y\right)\left(7x+5y\right)=$

 A. $49x^{2}-25y^{2}$ B. $49x^{2}-70xy-25y^{2}$

 C. $14x^{2}-10y^{2}$ D. $49x^{2}-35xy-25y^{2}$

45. **Simplify:** $\left(3x-2\right)\left(2x+4\right)=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

46. **Simplify:** $\left(4y-3\right)\left(2y-1\right)=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

47. **Simplify:** $a\left(6a-4\right)\left(5a-3\right)=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

48. **Simplify:** $(5y-3)^{2}=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

49. **Simplify:** 3$x$(2$x$ – 5)2 = \_\_\_\_\_\_\_\_\_\_\_

**Factor completely.**

50. -4x3 – 18xy = \_\_\_\_\_\_\_\_\_\_

51. $9x^{2}+18x=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

52. $81-f^{2}=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

53. $10d^{2}+d-3=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

54. $a^{2}+2a+ab+2b=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

55. $u\left(u-2v\right)-\left(u-2v\right)=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

56. $5a^{2}-10a+5=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$

57. $3x^{3}-2x^{2}+x=$

 A. prime B. $x\left(3x+1\right)(x-1)$

 C. $x(3x^{2}-2x+1)$ D. $x\left(3x-1\right)(x-1)$

58. **Factor:** $16-n^{4}$

 A. $\left(4-n^{2}\right)(4+n^{2})$ B. $\left(n+2\right)\left(n-2\right)(4+n^{2})$

 C. $\left(2-n\right)\left(2+n\right)(n^{2}+4)$ D. $\left(2-n\right)\left(2+n\right)\left(2-n\right)(2+n)$

59. **Factor:** $5x^{2}-13x+6$

A. $\left(x+3\right)(5x-2)$ B. $\left(x-3\right)(5x+2)$

C. $\left(x+2\right)(5x+3)$ D. $\left(x-2\right)(5x-3)$

60. If $x^{3}-7x^{2}+4x-28$ is factored completely, one of the factors is:

A. $x+2$ B. $x+7$ C. $x^{2}+7$ D. $x^{2}+4$

61. **Factor:** $3x^{2}+75$

A. $3\left(x+5\right)(x+5)$ B. $3(x^{2}+25)$

C. $3\left(x-5\right)(x-5)$ D. none of these

62. If $8x^{2}-72y^{2}$ is factored completely, one of the factors is:

A. $2x^{2}-18y^{2}$ B. $x+3$

C. $x-9y^{2}$ D. $x-3y$

63. **Factor:** $14xy^{2}-2xy$

A. $2xy(7y-1)$ B. $2x(7y^{2}-y)$

C. $-2xy(-7y)$ D. Prime

64. **Factor:** $n^{2}\left(n+1\right)-6(n+1)$

A. $\left(n^{2}-6\right)(n+1)$ B. $n^{3}+n^{2}-6n-6$

C. $\left(n^{2}-6\right)(n+1)^{2}$ D. Prime

65. **Factor:** $3x^{2}-9x-30$

A. $3\left(x+5\right)(x-2)$ B. $3(x^{2}-3x-10)$

C. $-\left(3x-15\right)(x+2)$ D. $3\left(x-5\right)(x+2)$

**Simplify:**

66. 

67. 

68. 

69. 

70. 

71. 

72. 

73. 

**Solve.**

74. $\frac{5}{2}$ = $\frac{3}{x}$

75. $\frac{a+3}{4}$ = $\frac{a}{5}$

**Statistics and Data Analysis**

76. The following stem and leaf plot represents the final exam scores of 15 students.

|  |  |
| --- | --- |
| 9 | 7 4 4 3 0  |
| 8 | 9 9 8 4 1  |
| 7 | 7 7  |
| 6 | 8 6  |
| 5 | 5 |

1. Find the mean, median, and mode for the set of data.
2. Find the probability that a student picked at random will earn an A on the exam.
3. Find the odds that a student picked at random will earn a B on the exam.

77. The following box and whiskers plot shows the attendance at a movie theater for the past 20 days.



 Which statements about the data are **NOT** true?

1. The median attendance is 25.
2. During the best day, 39 people attended the movies.
3. Less than 25 people attended the movies 50% of the time.
4. The interquartile range is 12.
5. More than 25 people attended the movies 75% of the time.

78. If you roll a regular six-sided die and flip one coin, what is the probability of rolling a 5 and flipping a tails?

79. If you roll a number cube with numbers 1–8 and spin a spinner with numbers 1-4, what is the probability of rolling an even number and spinning a prime.

80. The average score on 20 math tests is an 80%. If one student scored a 48%, what would the average be if you did not count that test (*round to the nearest tenth*)? What is the difference between the two averages?