

MIDDLESEX COUNTY COLLEGE

MAT 013 FINAL REVIEW

1. Choose the correct symbol, $>$, $<$, or $=$. -13 ___ -5

[A] $>$

[B] $<$

[C] $=$

2. Identify the set. The integers greater than -3 and less than 5 .

[A] $\{-2, -1, 0, 1, 2, 3, 4\}$

[B] $\{-2, -1, 0, 1, 2, 3, 4, 5\}$

[C] $\{-3, -2, -1, 0, 1, 2, 3, 4, 5\}$

[D] $\{-3, -2, -1, 0, 1, 2, 3, 4\}$

3. Evaluate. $|-45|$

[A] 45

[B] $\frac{1}{45}$

[C] $-\frac{1}{45}$

[D] -45

4. Add. $(-6) + 7 + (-3)$

[A] 2

[B] 16

[C] -10

[D] -2

5. Subtract. $-17 - 4 - (-20) - 24$

[A] -25

[B] -17

[C] -23

[D] 65

6. Multiply. $(-3)(-10)$

[A] 30

[B] -30

[C] 13

[D] -13

7. Multiply. $4(-1)(5)$

[A] 10

[B] 20

[C] -20

[D] -10

8. Divide. $(-24) \div 6$

[A] -4

[B] $\frac{1}{4}$

[C] $-\frac{1}{4}$

[D] 4

9. Aaron has \$170 in his savings account. He withdraws \$118, deposits \$42, and then withdraws \$85. Which shows the ending balance of his account?

- [A] \$331 [B] \$9 [C] -\$9 [D] -\$161

10. Which shows $\frac{1}{8}$ as a decimal?

- [A] 0.125 [B] 1.8 [C] 8 [D] 0.81

11. Simplify. $-\frac{11}{2} + \frac{13}{7} - \left(-\frac{14}{4}\right)$

- [A] $7\frac{5}{14}$ [B] $-\frac{1}{7}$ [C] $\frac{11}{13}$ [D] $10\frac{6}{7}$

12. Simplify. $\frac{16}{9} \times \left(-\frac{5}{2}\right)$

- [A] $-2\frac{13}{16}$ [B] $\frac{11}{18}$ [C] $-4\frac{4}{9}$ [D] $-1\frac{1}{9}$

13. Solve. $\frac{16}{3} \div \frac{8}{5}$

- [A] $1\frac{2}{3}$ [B] $3\frac{1}{3}$ [C] $1\frac{7}{8}$ [D] 3

14. Which shows 55% as a decimal?

- [A] 5.5 [B] 0.55 [C] 0.055 [D] 0.0055

15. Evaluate. $\left(\frac{7}{8}\right)^2 \cdot \left(\frac{1}{49}\right)$

- [A] $\frac{49}{64}$ [B] $\frac{7}{392}$ [C] $\frac{1}{64}$ [D] $\frac{1}{16}$

16. Evaluate. $(7 \cdot 5^2 - 7 \cdot 2^2) \div (4 + 3)$

- [A] 171 [B] 147 [C] 21 [D] 72

25. Translate into a variable expression. the difference between a number and twelve less than the number
[A] $2x - 12$ [B] $x - (-x - 12)$ [C] $-x - 12$ [D] $x - (x - 12)$
26. Simone has 3 fewer staples than Ramon. Simone has 37 staples. Which equation could be solved to find how many staples Ramon has?
[A] $x + 3 = 37$ [B] $x + 37 = 3$ [C] $x + 37 = -3$ [D] $x - 3 = 37$
27. Solve. $22 = m + 3$
[A] 19 [B] 25 [C] 66 [D] 21
28. Solve. $26 = -6y$
[A] $-\frac{13}{3}$ [B] -32 [C] $\frac{13}{3}$ [D] 32
29. Solve. $-\frac{4}{5}x = -8$
[A] $-3\frac{1}{4}$ [B] 10 [C] $\frac{1}{8}$ [D] $2\frac{1}{2}$
30. Lisa correctly answered 28 questions on a 35 question science test. What percent did Lisa get correct?
[A] 36% [B] 50% [C] 80% [D] 55%
31. Solve. $-7x + 6 = 41$
[A] -1 [B] -5 [C] 8 [D] 42
32. Solve. $-6 = 2(x - 8) - 4x$
[A] 5 [B] 7 [C] -7 [D] -5
33. Lawn ornaments may be rented at a rate determined by the formula $C = 2.7n + 2.2$, where C is the cost in dollars and n is the number of ornaments. Find the cost of renting 10 flamingo ornaments for a party.
[A] \$24.80 [B] \$27.00 [C] \$29.20 [D] \$32.94

34. Translate into an equation and solve. The product of ten and a number is negative fifty. Find the number.

- [A] $x + 10 = -50$; 10 [B] $10x = -50$; -5 [C] $x - 10 = -50$; -5 [D] $\frac{x}{10} = -50$; 10

35. Marty is 24 years old, which is 6 more than 3 times Donald's age. Which equation could be used to solve for Donald's age? How old is Donald?

- [A] $6x + 3 = 24$; 4.5 yr [B] $3x - 6 = 24$; 10 yr
[C] $3x + 6 = 24$; 6 yr [D] $6x + 3 = 24$; 3.5 yr

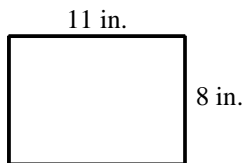
36. Find three consecutive odd integers such that four times the sum of the first and second is 17 more than 7 times the third.

- [A] 37, 39, 41 [B] 31, 33, 35 [C] 47, 49, 51 [D] 39, 41, 43

37. A stamp collector has 7¢ stamps and 15¢ stamps. The number of 7¢ stamps is eight less than three times the number of 15¢ stamps. The total value of the stamps is \$1.24. Find the number of both types of stamps in the collection.

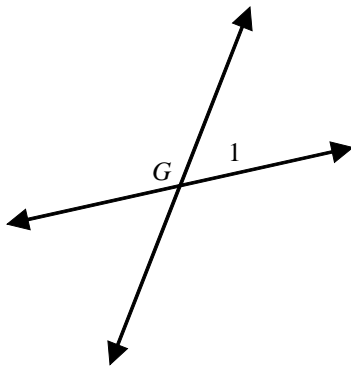
- [A] 7¢ stamps: 23; 15¢ stamps: 5 [B] 7¢ stamps: 7; 15¢ stamps: 5
[C] 7¢ stamps: 7; 15¢ stamps: 4 [D] 7¢ stamps: 5; 15¢ stamps: 7

38. Find the perimeter of the rectangle.



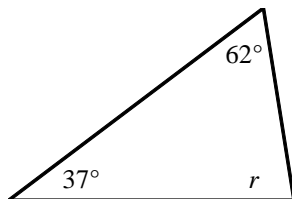
- [A] 40 in. [B] 88 in. [C] 38 in. [D] 19 in.

39. The measure of $\angle 1$ is 60. Which is the measure of $\angle G$?



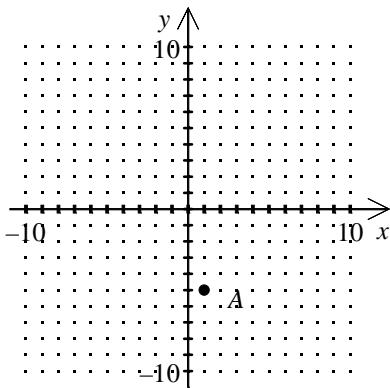
- [A] 30 [B] 120 [C] 60 [D] 240

40. Find the measure of the missing angle in the given triangle.



- [A] 189 [B] 81 [C] 99 [D] 9

41. Which are the coordinates of point A?



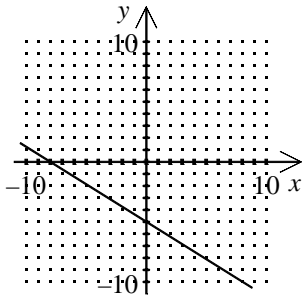
- [A] (-5, 1) [B] (1, -5) [C] (-1, -5) [D] (1, 5)

42. Which of the ordered pairs is a solution of $2x + y = -3$?

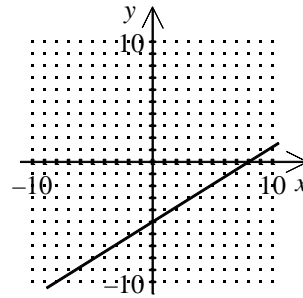
- [A] (-2, 2) [B] (2, -2) [C] (1, -2) [D] (-2, 1)

43. Which is the graph of $5x - 8y = -40$?

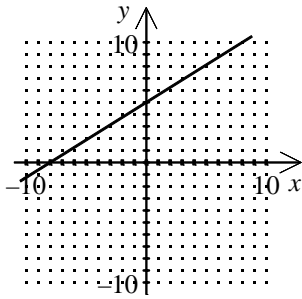
[A]



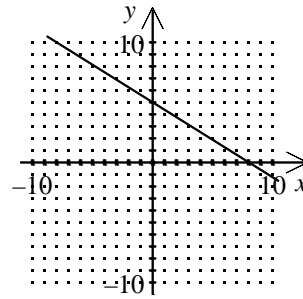
[B]



[C]



[D]



44. Find the slope of the line that contains $(1, -3)$ and $(5, 2)$.

[A] $-\frac{4}{5}$

[B] $-\frac{1}{6}$

[C] $\frac{4}{5}$

[D] $\frac{5}{4}$

45. Find the slope of the line that contains $(2, -8)$ and $(2, 2)$.

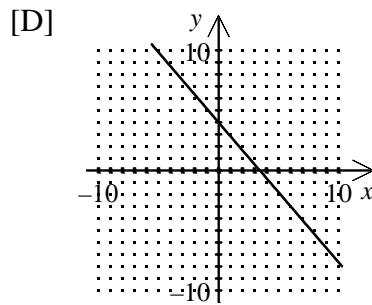
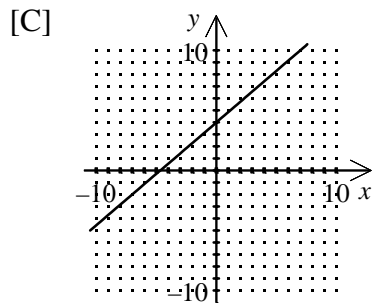
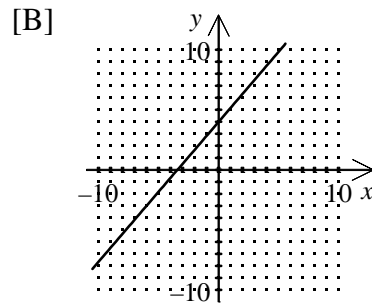
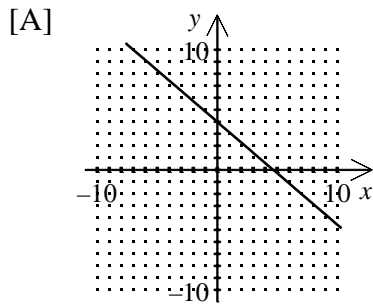
[A] 0

[B] $\frac{5}{2}$

[C] $\frac{5}{3}$

[D] undefined

46. Which is the graph of the line with a y-intercept of 4 and slope of $\frac{6}{7}$?



47. Which shows the equation of a line, in slope-intercept form, that passes through the point (5, 2) and has slope 3?

[A] $y = -3x + 13$

[B] $y = 3x + 13$

[C] $y = -3x - 13$

[D] $y = 3x - 13$

48. Solve by substitution. $3x + 2y = -13$

$$x = -1 + y$$

[A] $\left(-2, -\frac{7}{2}\right)$

[B] $(-2, -3)$

[C] no solution

[D] $(-3, -2)$

49. Solve by the addition method. $4x + 3y = 1$

$$x + 4y = 2$$

[A] $\left(5, \frac{3}{4}\right)$

[B] $\left(\frac{3}{4}, -\frac{2}{3}\right)$

[C] $\left(-\frac{2}{13}, \frac{7}{13}\right)$

[D] no solution

50. The total value of quarters and nickels in a jar full of change is \$7.70. If the nickels were quarters and the quarters were nickels, the total value of the coins would be \$4.90. Find the number of nickels in the bank.

[A] 16

[B] 6

[C] 14

[D] 28

51. Simplify. $(-3x - 5x^3 + 3) + (9x^3 + 9 - 7x)$

[A] $4x^3 - 10x - 6$

[B] $6x^3 + 4x - 4$

[C] $4x^3 - 10x + 12$

[D] $6x^3 + 4x + 12$

52. Simplify. $(-8x^2 + 2x) - (4x - 1 - 5x^2)$

[A] $-3x^2 + 6x - 1$

[B] $-13x^2 + 2x + 1$

[C] $-12x^2 - 3x - 1$

[D] $-3x^2 - 2x + 1$

53. Simplify. $(6x^3y^2)(-8x^4y^4)$

[A] $-48x^7y^6$

[B] $-48x^{12}y^8$

[C] $48x^7y^6$

[D] $48x^3y^4$

54. Simplify. $(-3s^4t^6u^2)^2$

[A] $-9s^8t^{12}u^4$

[B] $9s^6t^8u^4$

[C] $-9s^6t^8u^4$

[D] $9s^8t^{12}u^4$

55. Simplify. $-5x(x^2 + 4x - 7)$

[A] $-5x^3 + 20x^2 + 35x^2$

[B] $-5x^3 - 20x^2 - 35x$

[C] $-5x^3 - 20x^2 + 35x$

[D] $-5x^2 + 20x^3 - 35x$

56. Simplify. $(3x + 2y)(x^2 + 4xy - 5y^2)$

[A] $3x^3 + 14x^2y - 7xy^2 - 10y^3$

[B] $3x^3 - 15xy^2 + 2x^2y - 10y^3$

[C] 0

[D] $3x^3 + 7x^3y^3 - 10y^3$

57. Simplify. $(4c + 5)(5c - 6)$

[A] $20c^2 + c - 29$

[B] $20c^2 + c - 30$

[C] $20c^2 - 49c - 30$

[D] $20c^2 - 2c - 29$

58. Simplify. $(2x - 5y)^2$

[A] $4x^2 - 10xy + 25y^2$

[B] $4x^2 - 20xy + 25y^2$

[C] $4x^2 - 6xy + 25y^2$

[D] $4x^2 + 25y^2$

59. Simplify. $(3x + 4y)(3x - 4y)$

[A] $9x^2 + 24x - 16y^2$

[B] $9x^2 - 16y^2$

[C] $9x^2 + 16y^2$

[D] $9x^2 - 24x + 16y^2$

60. A rectangle has length $x + 3$ and width $x - 7$. Find the area, A , of the rectangle in terms of x .

- [A] $A = 4x - 8$ [B] $A = x^2 - 4x - 21$ [C] $A = x^2 + 10x - 21$ [D] $A = 2x - 4$

61. Simplify. $\frac{21x^4y^4}{-7x^2y^7}$

- [A] $-\frac{3x^6}{y^{11}}$ [B] $\frac{3x^2}{y^3}$ [C] $-\frac{x^2}{3y^3}$ [D] $-\frac{3x^2}{y^3}$

62. Express the number in scientific notation. 0.000000433

- [A] 4.33×10^{-7} [B] 433×10^{-7} [C] 4.33×10^{-5} [D] 4.33×10^8

63. Simplify. $\frac{12x^3y^3 + 15xy^2 + 3xy}{3xy}$

- [A] $4x^2y^2 + 15xy^2 + 3xy$ [B] $4x^2y^2 + 5y + xy$ [C] $4x^2y^2 + 5y + 1$ [D] $4x^2y^2 + 15xy^2 + 1$

64. Factor. $24x^4 - 16x^7$

- [A] $x^4(24 - 16x^3)$ [B] $8x^4(3 - 2x^3)$ [C] $8x^3(x - 2x^6 + 7)$ [D] $8(3x^4 - 2x^7)$

65. Factor completely. $2x^3 + 16x^2 - 2x^2 - 16x$

- [A] $x(2x + 7)(2x - 2)$ [B] $(2x + 7)(2x - 2)$ [C] $2(x + 8)(x - 1)$ [D] $2x(x + 8)(x - 1)$

66. Factor. $x^2 + 7x - 18$

- [A] $(x - 9)(x + 2)$ [B] $(x + 9)(x + 2)$ [C] $(x - 9)(x - 2)$ [D] $(x + 9)(x - 2)$

67. Factor. $12x^2 + 17x + 6$

- [A] $(4x - 3)(3x + 2)$ [B] $(4x + 3)(3x - 2)$ [C] $(4x + 3)(3x + 2)$ [D] $(4x - 3)(3x - 2)$

68. Factor. $9g^2 + 30g + 25$

- [A] $(3g + 5)(3g - 5)$ [B] $(3g - 5)^2$ [C] $(3g + 5)^2$ [D] $(3g - 25)(-5g + 1)$

69. Factor completely. $-6x^4 + 54x^2$

- [A] $6x^2(x^2 - 9)$ [B] $-6x^2(x + 3)(x - 3)$ [C] $-6x^2(x + 3)^2$ [D] $-6x^3(x - 9)$

70. Solve by factoring. $4x^2 - x - 3 = 0$

[A] $-1, \frac{3}{4}$

[B] $1, \frac{3}{4}$

[C] $-1, -\frac{3}{4}$

[D] $1, -\frac{3}{4}$

71. Simplify. $\frac{x^2 - 4}{x^2 - 3x + 2}$

[A] $\frac{x+2}{x+1}$

[B] $\frac{x+2}{x-1}$

[C] $\frac{x-2}{x-1}$

[D] $\frac{x-2}{x+1}$

72. Simplify. $\frac{c^2}{de} \cdot \frac{7d^4e}{4c}$

[A] 1

[B] $\frac{7cd^3}{4}$

[C] $\frac{7c^2d^4}{4cde}$

[D] $\frac{4c^3}{7d^5e^2}$

73. Simplify. $\frac{x^2}{x+1} \cdot \frac{x^2 - 7x - 8}{x^2 + 3x}$

[A] $\frac{x^2 + 8x}{x+3}$

[B] $\frac{-7x - 8}{3x}$

[C] x

[D] $\frac{x^2 - 8x}{x+3}$

74. Simplify. $\frac{x+6}{x-6} \div \frac{x^2 - 36}{6-x}$

[A] $\frac{1}{6-x}$

[B] $\frac{x+6}{x-6}$

[C] $\frac{1}{x-6}$

[D] $\frac{1}{8-x}$

75. Find the LCM. $15ef$ and $18e^4$

[A] $270e^4f$

[B] $90e^4f$

[C] $3e$

[D] $90ef$

76. Identify the fractions written in terms of the LCM of the denominators. $\frac{y}{x(x-3)}, \frac{6}{x^2}$

[A] $\frac{y}{x^2(x-3)}, \frac{6x-18}{x^2(x-3)}$

[B] $\frac{yx^2}{x^2(x-3)}, \frac{6x-18}{x^2(x-3)}$

[C] $\frac{xy}{x^2(x-3)}, \frac{6x-18}{x^2(x-3)}$

[D] $\frac{y}{x(x-3)}, \frac{6x-18}{x(x-3)}$

77. Simplify. $\frac{3x+9}{20x} + \frac{2x-9}{20x}$

[A] $\frac{1}{4}$

[B] $\frac{1}{2}$

[C] $\frac{3x+2x}{20x}$

[D] $\frac{x}{4}$

78. Simplify. $\frac{7x}{y^2z^2} + \frac{-6}{y^3z^3}$

[A] $\frac{7xyz-6}{y^3z^3}$

[B] $\frac{7x-6}{y^5z^5}$

[C] $\frac{7xz-6}{y^2z^3}$

[D] $\frac{7xy^3z^3-6y^2z^3}{y^5z^5}$

79. Simplify. $\frac{3}{x^2+11x+30} - \frac{9}{x+6}$

[A] $\frac{-9x+48}{x^2+11x+30}$

[B] $-\frac{6}{x^2+10x+24}$

[C] $\frac{-9x+8}{x^2+11x+30}$

[D] $\frac{-9x-42}{x^2+11x+30}$

80. Solve the formula for the given variable. $P = 2a + 2b$ for b

[A] $b = \frac{P-2a}{2}$

[B] $b = \frac{P-2}{2a}$

[C] $b = \frac{P}{2a+2}$

[D] $b = \frac{P}{2} - 2a$