Lambrick Park Secondary School

Math 9

Final Exam Review Package

2018-2019

Name:_____

Name: _____ Class: _____ Date: _____ ID: A

Math 9 Final Exam REVIEW

____ 1. In the expression $-6^3 = -216$, the base is....

a. 6
b. -6
c. 3
d. -216

____ 2. Which of the following is equal to 1?

a. 4×2^0
b. -4×2^0
c. $(4 \times 2)^0$
d. $-(4 \times 2)^0$

____ 3. Simplify: $\left(x^6 \cdot x^4\right)^2$

a. x^{12}
b. x^{20}
c. x^{26}
d. x^{48}

____ 4. Simplify: $\frac{x^{20}}{x^{-10}}$

a. x^{20}
b. x^{10}
c. x^{30}
d. x^2

____ 5. Simplify: $\left(\frac{x^0}{x^6}\right)^{-2}$

a. x^{12}
b. x^{-12}
c. x^{10}
d. x^{-10}

____ 6. Evaluate 3^{-2} without using a calculator.

a. $\sqrt{3}$
b. $\frac{1}{6}$
c. $\frac{1}{9}$
d. 9

____ 7. Evaluate $\left(\frac{2}{3}\right)^{-3}$.

a. $-\frac{27}{8}$
b. $-\frac{8}{27}$
c. $\frac{27}{8}$
d. $-\frac{1}{6}$

____ 8. Which power with a negative exponent is equivalent to $\frac{1}{125}$?

a. 5^{-3}
b. -5^{-3}
c. 3^{-5}
d. $(-5)^3$

____ 9. Simplify $\left(3^2\right)^{-3}$.

a. -3^6
b. $-\frac{1}{3^6}$
c. $\frac{1}{3^6}$
d. 3^6

____ 10. Evaluate $\left(-\frac{1}{2}\right)^{-4} \times \left(-\frac{1}{2}\right)^{2}$.

a. $-\frac{1}{4}$

b. $-\frac{1}{2}$

c. 2

d. 4

____ 11. Evaluate $\left(\frac{2}{3}\right)^{3} \times \left(\frac{2}{3}\right)^{2}$.

a. $\frac{4}{9}$

b. $\frac{8}{27}$

c. $\frac{32}{243}$

d. $\frac{1024}{59\,049}$

12. $4^0 =$

13. $-4^0 =$

14. $(4 \times 6)^0 =$

15. $-4^0 - 6^0 =$

16. $(-4)^0 + (-6)^0 =$

17. $-\left(\frac{4}{5}\right)^0 =$

18. Multiply and simplify. Leave answer in exponential form.
$4^5 \times 4^3 =$

19. Multiply and simplify. Leave answer in exponential form.
$5^4 \times 5^3 \times 5 =$

20. Multiply and simplify. Leave answer in exponential form.
$(-6)^4 \times (-6)^2 \times (-6)^0 =$

21. Divide and simplify. Leave answer in exponential form.
$\frac{4^3}{4^2} =$

22. Divide and simplify. Leave answer in exponential form.
$\frac{(-2)^5}{(-2)^2} =$

23. Divide and simplify. Leave answer in exponential form.
$\frac{4^9 \times 3^6}{4^2 \times 3^2} =$

24. Simplify and leave answer in exponential form.
$\frac{2^7 \times 2^3}{2^6} =$

25. Simplify and leave answer in exponential form.
$\frac{(-7)^4 \times (-7)^5}{(-7)^3 \times (-7)^2} =$

26. Simplify and leave answer in exponential form.
$\frac{10 \times 10^7 \times 10^4}{10^6 \times 10^5} =$

27. $3^7 \div \left(3^6 \div 3^3\right) \div 3^2 =$

28. $6^9 \div 6^5 \times 6 \div 6^3 =$

29. Solve for x:
$64 = 2^x$

30. Will the answer be positive or negative? $a > 0$
$-a^{50}$

31. Will the answer be positive or negative? $a > 0$
$(-a)^{50}$

32. Write $6 \times 6 \times 6 \times 6 \times 6$ in exponential notation.

33. Write $-6 \times -6 \times -6 \times -6$ in exponential notation.

34. Evaluate: 3^4

35. Evaluate: $(-3)^5$

36. Evaluate: $-(-5)^2$

37. Evaluate: -6^2

38. Write as a product of repeat factors: $(-6)^3$

39. Write as a product of repeat factors: $-(-a)^4$

40. $4 \times 3^2 =$

41. $(4 \times 3)^2 =$

42. $-7 - 4^2 =$

43. $\left(2^5 \div 2^2\right)\left(2^6 \div 2^3\right) =$

44. $12 + 3\left[(20 - 4) - 2 + 3^4\right] =$

45. $\dfrac{(-2)^2 + 4^2}{2 - 5^2 + 3 \times 4} =$

46. Simplify $\left(\dfrac{1}{3}\right)^2 \cdot \left(\dfrac{9}{2}\right)^3$

47. Evaluate $(-4)^{-4}$ without using a calculator.

____ 48. Which of the following numbers is irrational?

a. $\sqrt{6}$

b. $\sqrt{9}$

c. $\sqrt{25}$

d. $\sqrt{\dfrac{5}{125}}$

49. $\sqrt{4} + \sqrt{81} =$

50. $\sqrt{64} =$

51. $\sqrt{0} =$

52. $\sqrt{-4} =$

53. $\sqrt{\frac{1}{9}} =$

54. $\sqrt{\frac{4}{25}} =$

55. $\sqrt{0.0625} =$

56. Simplify, if possible.
$-\sqrt{\frac{12}{48}}$

57. $\sqrt{0.64} =$

58. $-\sqrt{36} - \sqrt{16} =$

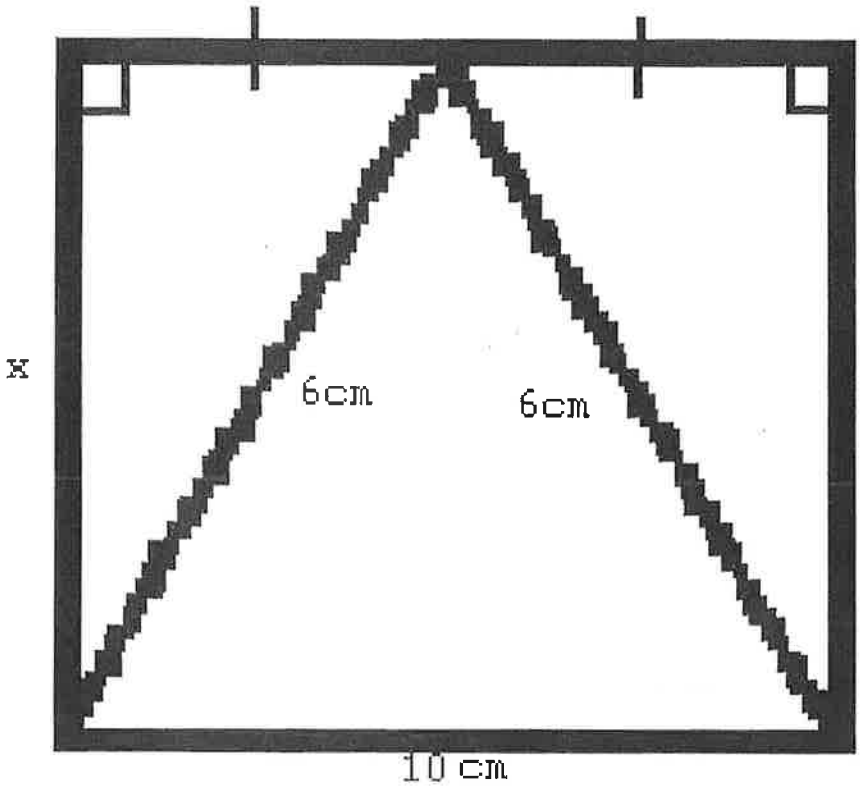
59. Define rational number.

60. Define irrational number.

61. Without using a calculator, determine the square root of the following irrational number to one decimal place.
$\sqrt{63}$

62. Without using a calculator, determine the square root of the following irrational number to one decimal place.
$\sqrt{98}$

63. Find the measure of x.



64. A baseball diamond is 120 ft on each side (from base to base). How far is it from second base to home plate?

____ 65. Which of the following represents these rational numbers in ascending order?
$\frac{6}{7}, 0.8, 0.\overline{6}, \frac{13}{14}$

a. $0.\overline{6}, 0.8, \frac{6}{7}, \frac{13}{14}$

b. $\frac{6}{7}, 0.8, 0.\overline{6}, \frac{13}{14}$

c. $0.\overline{6}, \frac{6}{7}, 0.8, \frac{13}{14}$

d. $\frac{13}{14}, \frac{6}{7}, 0.8, 0.\overline{6}$

____ 66. Order the rational numbers in descending order.
$1\frac{3}{8}, -3\frac{1}{3}, 1\frac{15}{16}, -1\frac{10}{11}$

a. $-3\frac{1}{3}, -1\frac{10}{11}, 1\frac{15}{16}, 1\frac{3}{8}$

b. $1\frac{15}{16}, 1\frac{3}{8}, -1\frac{10}{11}, -3\frac{1}{3}$

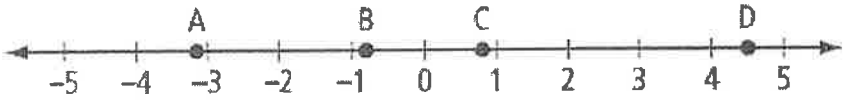
c. $1\frac{3}{8}, -3\frac{1}{3}, -1\frac{10}{11}, 1\frac{15}{16}$

d. $1\frac{3}{8}, 1\frac{15}{16}, -1\frac{10}{11}, -3\frac{1}{3}$

____ 67. Which of the following sequences represents the numbers below written in descending order?
$\frac{8}{13}, 0.7, 0.1\overline{3}, \frac{7}{8}$

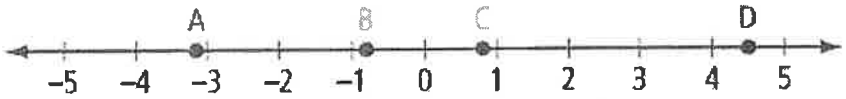
a. $0.1\overline{3}, 0.7, \frac{7}{8}, \frac{8}{13}$
b. $\frac{8}{13}, \frac{7}{8}, 0.1\overline{3}, 0.7$
c. $\frac{8}{13}, 0.7, \frac{7}{8}, 0.1\overline{3}$
d. $\frac{7}{8}, 0.7, \frac{8}{13}, 0.1\overline{3}$

____ 68. Which point on the number line represents the rational number $\frac{4}{5}$?



a. A
b. B
c. C
d. D

____ 69. Which point on the number line represents the rational number $\frac{18}{4}$?



a. A
b. B
c. C
d. D

____ 70. Which fraction is equivalent to $\frac{5}{30}$?

a. $\frac{6}{10}$
b. $\frac{1}{5}$
c. $\frac{1}{6}$
d. $\frac{2}{15}$

____ 71. Determine the mixed number that falls between 1.2 and 1.3.

a. $1\frac{4}{5}$
b. $1\frac{3}{4}$
c. $1\frac{1}{4}$
d. $1\frac{1}{5}$

____ 72. What is the value of $(-5.6) \div 2.0 - (-3.4) \times 1.7$?

a. 1.02
b. 2.12
c. 2.98
d. 3.58

____ 73. What is $\frac{20}{27} \div \frac{5}{9}$?

a. $\frac{3}{2}$
b. $\frac{4}{3}$
c. $\frac{3}{4}$
d. $\frac{2}{3}$

____ 74. Calculate $\frac{6}{21} \times \frac{3}{2}$.

a. $\frac{3}{19}$
b. $\frac{3}{14}$
c. $\frac{3}{7}$
d. $\frac{1}{3}$

____ 75. Evaluate $\frac{4}{9} + \frac{1}{6} \times \frac{2}{3}$.

a. $\frac{5}{9}$
b. $\frac{11}{18}$
c. $\frac{7}{9}$
d. $\frac{5}{6}$

____ 76. What is $\left(\frac{6}{7} - \frac{1}{2}\right) \times \frac{14}{15}$?

a. $\frac{1}{3}$
b. $\frac{3}{5}$
c. $\frac{14}{15}$
d. $\frac{45}{15}$

____ 77. Evaluate $\frac{11}{21} + \frac{1}{3}$.

a. $\frac{13}{14}$
b. $\frac{6}{7}$
c. $\frac{3}{4}$
d. $\frac{2}{3}$

____ 78. What is the result of $\frac{5}{9} - \frac{1}{6}$?

a. $\frac{23}{54}$
b. $\frac{5}{12}$
c. $\frac{7}{18}$
d. $\frac{13}{36}$

____ 79. What is $\frac{2}{5} \times \left(\frac{2}{3} + \frac{1}{8}\right) \div \frac{8}{15}$?

a. $\frac{15}{52}$
b. $\frac{23}{50}$
c. $\frac{19}{32}$
d. $\frac{29}{40}$

80. Written as an improper fraction, $2\frac{3}{4}$ is _____.

81. Written as a mixed number, $-\frac{17}{5}$ is _____.

____ 82. $15n = 105$
a. 1575
b. 120
c. 90
d. 7

____ 83. $2t - 1 = 19$
a. -9
b. 10
c. -10
d. 9

____ 84. $7x - 4x - 3 = 24$
a. 9
b. -9
c. 7
d. -7

____ 85. If $x + 2x + 4x = -14$, then x =
a. -2
b. $\frac{-7}{4}$
c. -1
d. $\frac{7}{4}$

____ 86. $3(x+1) = 12$
a. 3
b. 4
c. 6
d. 8

____ 87. Solve: $\frac{2}{3}x - 5 = \frac{x}{4} - 10$
a. -12
b. 12
c. -1
d. -2

____ 88. If $\frac{p}{3} + 4 = 7$ then p =
a. 0
b. 4
c. 6
d. 9

89. Solve for x: $x + 4 = -8$

90. Solve for x:
$\frac{x}{5}+\frac{1}{4}=\frac{7}{20}$

91. Solve for y:
$30y+35(50-y)=1600$

92. Solve: $6(2+a)=16$,

93. Solve: $0.02x - 0.3 = 0.015 + 0.011x$

94. Solve: $3x-\frac{2}{3}=6-x$

95. Solve: $6(x-3)+6=2(x+13)-2$

____ 96. Which statement is FALSE for the polynomial $3x^2y-5x+12$
a. It has coefficients 3 and 5.
b. It has a constant of 12.
c. It has variables x and y.
d. It has exponents 2 and 1.

____ 97. Which of the following equations is correct?
a. $(4xy^2)(9x^3y)=36x^3y^2$
b. $(-4x^2y^3)(9x^3y^2)=-36x^6y^6$
c. $(-4x^3y^3)(-9x^3y^2)=36x^6y^5$
d. $(4x^3y)(-9x^2y)=-36x^5y$

____ 98. Simplify: $2a(3a^2-5)-4a^2(7+a)$
a. $2a^3-28a^2-10a$
b. $6a^3-32a^2-10a$
c. $6a^3-24a^2-10a$
d. $10a^3-28a^2-10a$

____ 99. Simplify: $(8x^2-11)+(2x+5)-(3x^2-7x+10)$
a. $-5x^2-9x+4$
b. $-5x^2-9x+16$
c. $5x^2+9x-16$
d. $5x^2+9x+4$

____ 100. $\frac{20x^3y^4+40x^2y^5-12x^7y^5}{-4x^2y^2}=$
a. $-5x^5y^6-10x^4y^7+3x^9y^7$
b. $-5xy^2-10y^3+3x^5y^3$
c. $5x^5y^6-10x^4y^7-3x^9y^7$
d. $5xy^2-10y^3-3x^5y^3$

101. Simplify.
$x^2+y^2-x^2+2y+xy-2y+xy^2=$

102. Determine the degree: $3x^2-4x^5$

103. Simplify:

$2x^2 - 3x + 5x - x^2 - 1$

104. Simplify:

$-7 + 10x - 6y + 8x - 5y + 2$

105. $-2x\left(x^2 + 5\right) =$

106. $5(x - 10) =$

107. $2x\left(3x^2 - 7x - 9\right) =$

108. Add.
$\left(x^2 - 5\right) + \left(x^2 + 5\right) =$

109. $\left(-5xy + 2x^2 - 3y^2\right) + \left(-2xy - 3x^2 + 5y^2\right) =$

110. $\left(-2x^2 - 5x + 3\right) + \left(7x^2 - 2x - 4\right) + \left(3x^2 + x - 5\right) =$

111. $\left(-3x^2 - 5x + 1\right) - \left(4x^2 - 2x - 5\right) =$

112. $\left(3x^2 + 2x - 7\right) - \left(3x^2 + 2x - 8\right) =$

113. $\frac{6x + 12y}{-2} =$

114. $\frac{5x^2 + 10}{5} =$

115. $\frac{20x^2 - 5x + 15}{-5} =$

116. $\frac{18n^3 - 15n^2 + 12n + 3}{3} =$

____ 117. In which quadrant would you find the point (1, -2)?

a. I
b. II
c. III
d. IV

____ 118. In which quadrant would you find the point (-3, 4)?

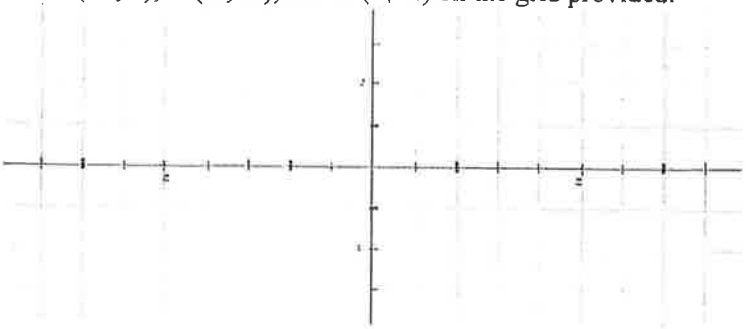
a. I
b. II
c. III
d. IV

____ 119. If a point (x, y) is in quadrant IV, then

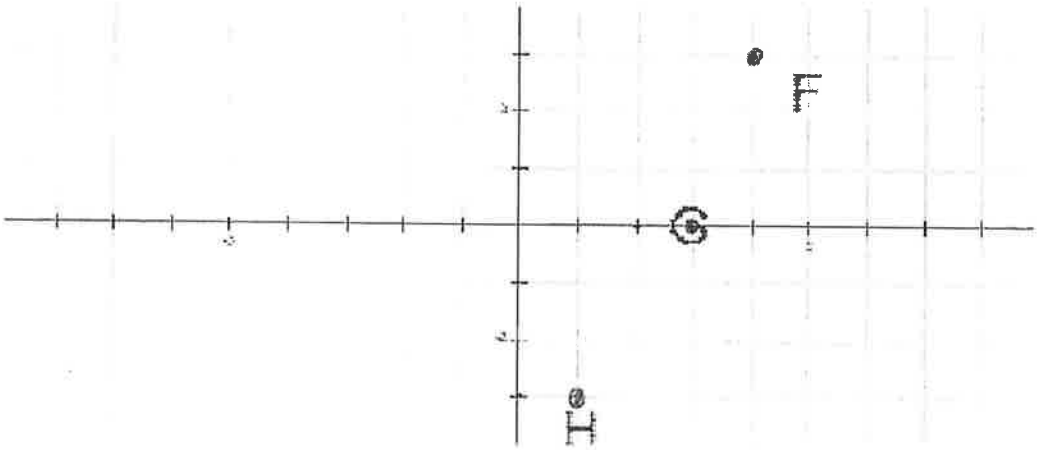
a. $x > 0, y > 0$
b. $x > 0, y < 0$
c. $x < 0, y < 0$
d. $x < 0, y > 0$

____ 120. Is (-1, 5) a solution to the equation $y = -3x + 2$?

121. Plot A(-2, 3), B (-5, -1), and C (5, -2) on the grid provided.

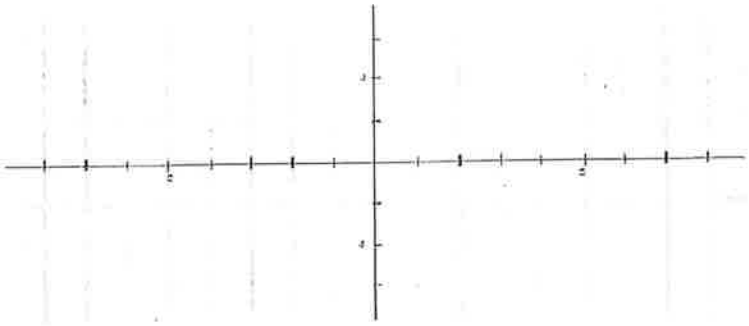


122. Find the coordinates of F, G, and H.

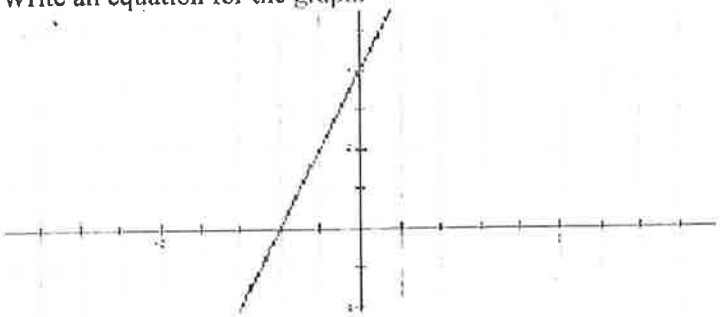


123. Graph the equation and identify the y-intercept.

$y = -3x + 2$



124. Write an equation for the graph.

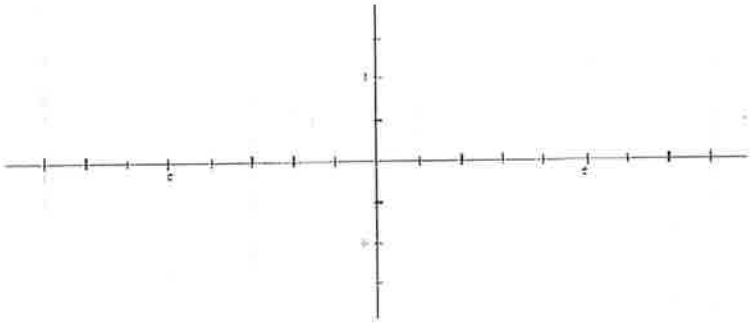


_____ 125. Is (-7, 4) a solution to $2x - 7y = 14$?

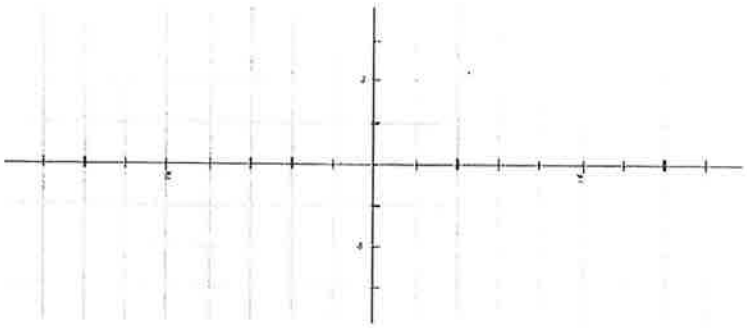
126. Complete the table of values for the equation $4x + 5y = -20$

x	y
0	
	0
	-8

127. Graph $x - 4y = 8$ on the grid provided.

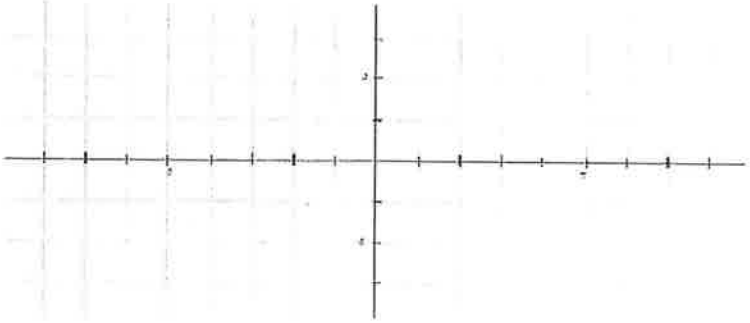


128. Graph x = 3 on the grid provided.



129. Graph $y = -2$ on the grid provided.

130. Graph $y = x$ on the grid provided.



131. Write an expression relation y to x.

x	1	2	3	4
y	1	3	5	7

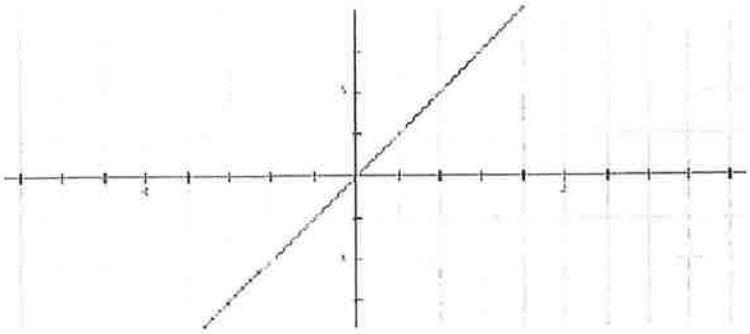
132. Write an expression relation y to x.

x	1	2	3	4
y	-1	-4	-7	-10

133. Barbie and Ken decide to leave their campervan in Bedrock City and rent a car for a two-day side trip to Riverdale to visit Betty and Veronica. The cost of renting the car is $45 per day and $0.30 per km.

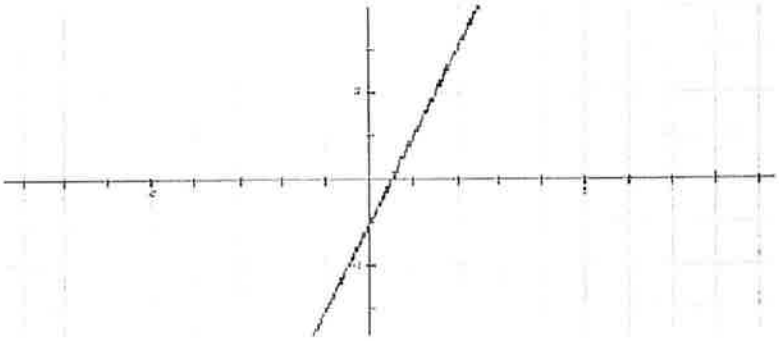
a) Write and equation relating cost (C) to the number of Km (n) travelled in one day.

b) Calculate the cost of their day trip of 576 km.



____ 134. Match the equation with the graph:

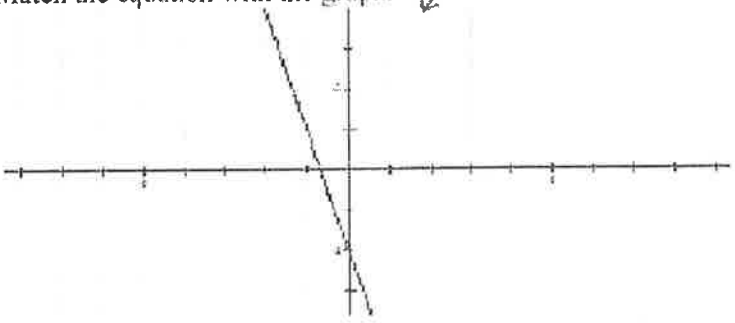
a. $y = x$
b. $y = -x$
c. $x + y = 1$
d. $x - y = 1$



____ 135. Match the equation with the graph:

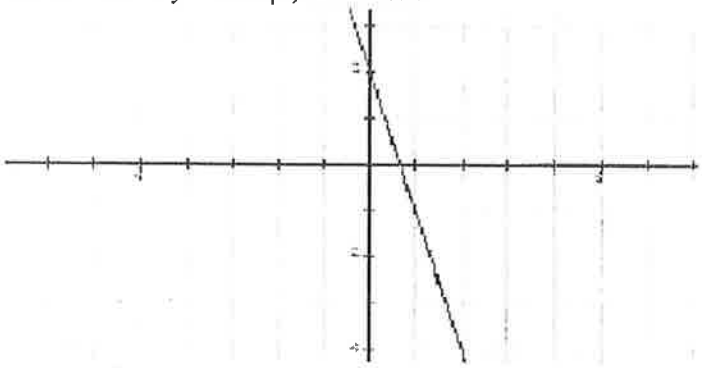
a. $2x + y = 1$
b. $2x - y = 1$
c. $x + 2y = 1$
d. $x - 2y = 1$

____ 136. Match the equation with the graph:

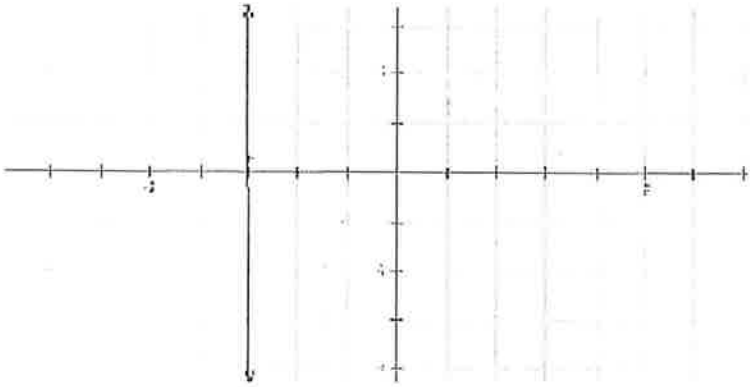


a. $y = 3x + 2$
b. $y = -3x + 2$
c. $y = 3x - 2$
d. $y = -3x - 2$

137. Determine the y-intercept, if it exists.



138. Determine the y-intercept, if it exists.



139. Given $-2x^3 + 4xy + 8y^2 - 5xy + 3x^3 - 17y^2$,

(a) Simplify the polynomial above.
(b) Write the polynomial above in descending powers of x.
(c) Classify the polynomial above as a monomial, binomial, or trinomial.

(a)

(b)

(c)

____ 140. Expand $(-3y)(4y+1)$ using the distributive property.

a. $-7y^2 - 3y$
c. $-7y + 1$
b. $-12y^2 - 3y$
d. $-12y - 1$

____ 141. Use the distributive property to expand $(5.2x)(-3x+2)$.

a. $15.6x^2 - 10.4x$
c. $-15.6x^2 + 10.4x$
b. $15.6x^2 + 10.4x$
d. $-15.6x + 10.4$

142. Apply the distributive property to simplify $2x(x-4) - 3x(x-4)$.

____ 143. Expand and simplify: $(p+3)(p-7)$

a. $p^2 - 4p - 21$
c. $p^2 + 10p - 21$
b. $p^2 - 10p - 21$
d. $p^2 + 4p - 21$

____ 144. Expand and simplify: $(4-r)(7-r)$

a. $28 - 11r + r^2$
c. $28 + 3r + r^2$
b. $28 - 3r + r^2$
d. $28 + 11r + r^2$

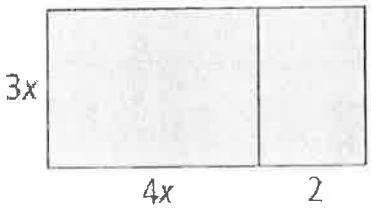
____ 145. The product of $(7x-1)(2x+3)$ is

a. $14x^2 + 19x - 3$
c. $14x^2 - 19x - 3$
b. $14x^2 + 23x - 3$
d. $14x^2 - 23x + 3$

146. Multiply $(3x-2)(7x+3)$

147. Multiply $(y-2x)(2y+3x)$

____ 148. Which multiplication statement is represented by the area model below?



a. $(3x)(4x+2) = 12x^2 + 6x$
c. $(3x)(4x+2) = 7x + 2$
b. $(3x)(4x-2) = 12x^2 - 6x$
d. $(3x)(4x-2) = 7x - 2$

____ 149. Find the greatest common factor of $-7x^3y^2$, $14x^2y$, $28x^5y^3$

a. $7xy$
c. $7xy^2$
b. $7x^5y^3$
d. $7x^2y$

____ 150. Find the greatest common factor of $12a^4b^3c^7$, $-36a^8b^4c^6$, $144a^3b^6c^4$

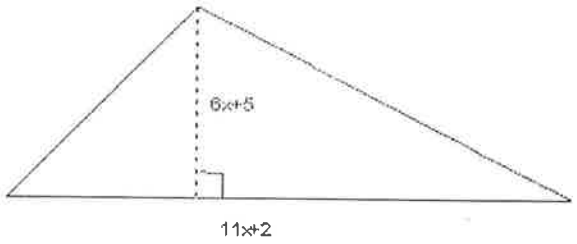
a. $4a^3b^4c^4$
c. $12a^3b^3c^4$
b. $12a^4b^4c^6$
d. $6a^4b^2c^4$

Name: _____ ID: A

151. Finish factoring the expression below.

$4xy^3 - 8x^2y + 12xy = 2xy($ $)$

152. Calculate the area of the triangle shown.



____ 153. Factor: $t^2 + 9t - 36$

a. $(t-2)(t+18)$
b. $(t+2)(t-18)$
c. $(t+12)(t-3)$
d. $(t-12)(t+3)$

____ 154. Factor: $v^2 - 13v + 36$

a. $(v+3)(v+12)$
b. $(v-3)(v-12)$
c. $(v-4)(v-9)$
d. $(v+4)(v+9)$

____ 155. Factor: $-24 - 2x + x^2$

a. $(6+x)(-4+x)$
b. $(3+x)(-8+x)$
c. $(-3+x)(8+x)$
d. $(-6+x)(4+x)$

____ 156. Factor: $-3b^2 + 15b + 18$

a. $-3(b-2)(b+3)$
b. $-3(b+2)(b-3)$
c. $-3(b-1)(b+6)$
d. $-3(b+1)(b-6)$

____ 157. Factor: $-5m^2 + 20m + 60$

a. $-5(m+2)(m-6)$
b. $-5(m-2)(m+6)$
c. $-5(m-4)(m+3)$
d. $-5(m+4)(m-3)$

158. Factor: $s^2 - 33s + 32$

____ 159. Factor $x^2 - x - 20$ completely.

a. $(x-2)(x+10)$
b. $(x-4)(x-5)$
c. $(x+4)(x-5)$
d. $(x-4)(x+5)$

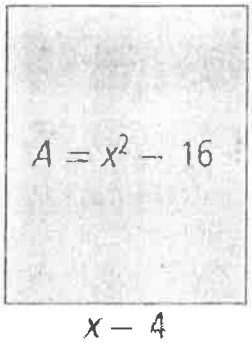
160. Factor completely. $-3u^2 - 6u + 144$

____ 161. Which of the following is a perfect square trinomial?

a. $x^2 - 4x + 16$
b. $x^2 - 9x + 81$
c. $x^2 - 6x + 75$
d. $x^2 - 14x + 49$

162. Factor $8x^2 - 32$

____ 163. Determine the missing dimension of the rectangle.



a. $x-4$
b. $x+4$
c. x^2+4
d. x^2-4

164. Factor: $16p^2 - 81q^2$

a. $(4p-9q)^2$
b. $(4p+9q)^2$
c. $(16p-9q)(p-9q)$
d. $(4p+9q)(4p-9q)$

165. Factor: $49s^2 - 64t^2$