Regular / Honors Summer Assignment (1-51)   APC (1-79)

Name _____ Date _____ Class_____

Placement Test

Select the best answer.

1. Evaluate $d - c$ for $c = 12$ and $d = 8$.

   A −4 C 20

   B $\frac{8}{12}$ D 96

2. Subtract $\frac{3}{4} - \frac{2}{5}$.

   F −1 H $\frac{1}{10}$

   G $\frac{1}{20}$ J $\frac{7}{20}$

3. A school purchased 888 pencils in boxes containing 12 pencils each. How many boxes of pencils were purchased?

   A 74 C 89

   B 86 D 876

4. Which is NOT an integer?

   F $\frac{12}{3}$ H $\frac{9}{9}$

   G 0 J $\frac{20}{6}$

5. Find $\sqrt{64}$.

   A 8 C 32

   B 16 D 56

6. Simplify $\frac{30 - 4 \cdot 2}{2 \cdot 2^2}$.

   F 3 H 6

   G 4 J 8

7. Solve $11 = x + 19$.

   A −8 C 8

   B $\frac{11}{19}$ D 30

8. Solve $-3x = -27$.

   F −30 H 9

   G −9 J 81

9. Enrique is trying to save $672 for a new guitar. He earned $420 in March by working in a bookstore for a total of 56 hours. How much does Enrique earn per hour?

   A $1.60 C $12.00

   B $7.50 D $75.00

10. There were 1200 boys at a school assembly. The ratio of boys to girls at the assembly was 20:23. How many girls were at the assembly?

    F 1043 H 1220

    G 1177 J 1380

11. 40% of what number is 24?

    A 0.6 C 60

    B 9.6 D 960

12. What is the simple interest earned on $300 over 6 years at 4% interest?

    F $72.00 H $379.60

    G $79.60 J $1872.00

13. A shoe factory produced 900 shoes on Monday. The factory produced 20% more shoes on Tuesday. How many shoes did the factory produce on Tuesday?

    A 180 C 1080

    B 920 D 1800

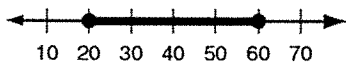14. Students at a university need at least 32 credits to earn a degree. Which inequality represents this situation?

    F $c = 32$ H $c > 32$

    G $c \le 32$ J $c \ge 32$

15. Solve $2x - 16 > 40$.

    A $x < 12$ C $x < 28$

    B $x > 12$ D $x > 28$

Holt McDougal Algebra 2

Placement Test

16. Which situation matches the graph below?


    ```
    10  20  30  40  50  60  70
    ```

    F The game will be played outdoors if the temperature is below 20° or above 60°.

    G The game will be played outdoors if the temperature is between 20° and 60° inclusive.

    H The game will be played outdoors if the temperature is greater than or equal to 20°.

    J The game will be played outdoors if the temperature is less than or equal to 60°.

17. Which situation could the graph below represent?

    Customers

    8 A.M.   Noon   4 P.M.

    Time
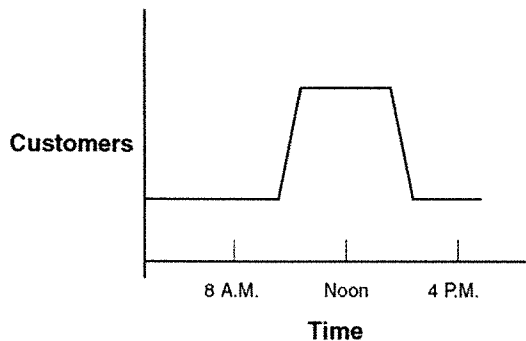
    A A restaurant had the fewest customers during lunch.

    B A restaurant had the most customers during dinner.

    C A restaurant had the most customers during lunch.

    D A restaurant had the same number of customers during breakfast and lunch.

18. What is the domain of the relation $\{(1, 2), (1, 6), (3, 2), (3, 6), (9, 2)\}$?

    F $\{1, 2, 3, 6, 9\}$ H $\{1, 3, 9\}$

    G $\{1, 3\}$ J $\{2, 6\}$

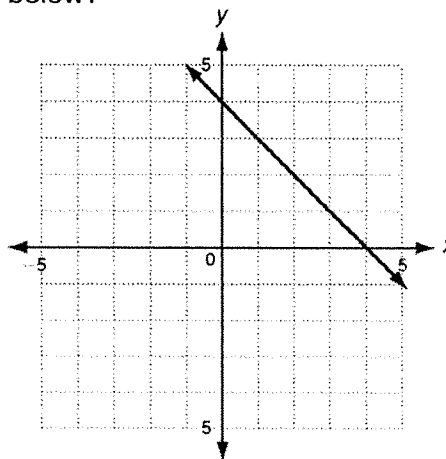19. Which is the dependent variable in the following situation?
    The daily cost of a rental car is $40 plus 15 cents for each mile.

    A cost per mile

    B daily cost of a rental car

    C number of days

    D number of miles

20. Which ordered pair is on the graph of $y = 5x + 7$?

    F (1, 5)   H (5, 1)

    G (1, 12)   J (12, 1)

21. Which function is shown in the graph below?

    A $f(x) = -4x - 1$ C $f(x) = -x + 4$
    B $f(x) = -x - 4$ D $f(x) = 4x + 1$

22. Find the common difference in the arithmetic sequence below.
    78, 72, 66, 60, 54, . . .

    F $\dfrac{78}{72}$ H -24

    G -6 J 150

23. What is the y-intercept of $3x + 5y = 15$?

    A -5 C 3

    B -3 D 5

24. Which slope is steepest?

    F -9 H $\dfrac{1}{10}$

    G -7 J $\dfrac{10}{9}$

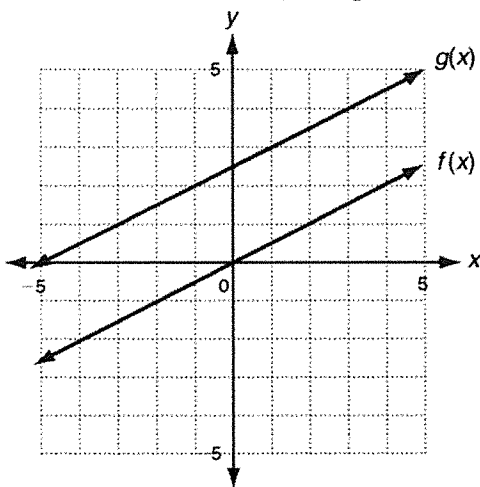Holt McDougal Algebra 2

Placement Test

25. Find the slope of the line that contains (6, 3) and (11, 12).

    A −3

    B $\dfrac{5}{9}$

    C $\dfrac{3}{4}$

    D $\dfrac{9}{5}$

26. Which function has a y-intercept of 4?

    F $y = -4x + 1$ H $y = 4x + 1$

    G $y - 4 = x$ J $4y = x + 1$

27. The graphs of $f(x)$ and $g(x)$ are shown below. Which describes the transformation from $f(x)$ to $g(x)$?

    A reflection across the x-axis

    B rotation

    C translation down

    D translation up

28. Which ordered pair is a solution of the

    system $\begin{cases} 2x - 3y = 17 \\ y = 2x - 11 \end{cases}$?

    F (−3, 4)   H (4, −3)

    G (0, −11)   J (10, 1)

29. Solve the system $\begin{cases} 2x + 3y = 15 \\ 6x - 4y = 32 \end{cases}$.

    A (0, −8)   C (3, 3)

    B (0, 5)   D (6, 1)

30. Which ordered pair is a solution of $y < 4x - 2$?

    F (2, 6)   H (5, 16)

    G (2, 10)   J (5, 19)

31. What is 0.0000523 in scientific notation?

    A 5.23×10^{-5} C 5.23×10^{5}

    B 523×10^{-7} D 523×10^{7}

32. Simplify $x^5 \cdot x^2$.

    F $x^{2.5}$ H x^7

    G x^3 J x^{10}

33. Simplify $\dfrac{2^8}{2^6}$.

    A $\dfrac{1}{4}$ C $2^{\frac{8}{6}}$

    B 1   D 4

34. Classify $x^3 - 3x^2 + 12$ according to its degree and number of terms.

    F cubic binomial

    G cubic trinomial

    H quadratic binomial

    J quadratic trinomial

35. Multiply $(r - 8)(r + 3)$.

    A $2r - 24$ C $r^2 - 5r - 24$

    B $r^2 - 24$ D $r^2 + 11r + 24$

36. What is the prime factorization of 162?

    F $2 \cdot 3 \cdot 4$ H $2 \cdot 81$

    G $2 \cdot 3^4$ J $9 \cdot 9 \cdot 2$

37. Which is the complete factorization of $8x^3 - 24x$?

    A $x(8x^2 - 24)$ C $8x(x^2 - 3)$

    B $4x(2x^2 - 6)$ D $24x(3x^2 - 1)$

38. The area of a square is $16x^2 + 24x + 9$. Which is an equivalent expression for the area of the square?
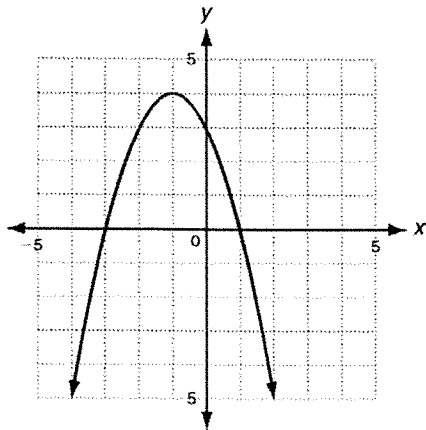
    F $(4x - 3)^2$ H $(4x - 9x + 3)^2$

    G $(4x + 3)^2$ J $(4x + 9x + 3)^2$

39. Which is a quadratic function?

    A $y = \sqrt{10x + 21}$

    B $y = 10x + 21$

    C $y = x^2 + 10x + 21$

    D $y = x^3 + 10x^2 + 6x + 21$

Placement Test

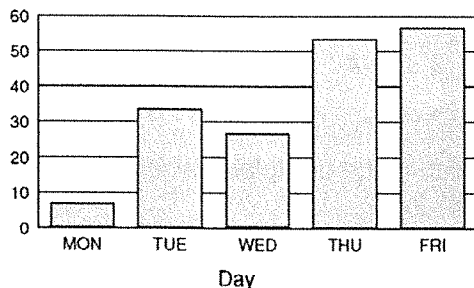40. How many roots does the function graphed below have?

F exactly 1   H infinitely many

G exactly 2   J none

41. Solve $x^2 = 144$.

A −72 and 72   C 12

B −12 and 12   D 72

42. Students at a high school were asked "What is your favorite day of the school week?" According to the chart below, which day was the third most popular choice?

Favorite Day of Week

F Monday   H Tuesday

G Thursday   J Wednesday

43. Jake's parents measure his height every year on his birthday. Which type of graph would be best to display the data?

A bar   C line

B circle   D stem-and-leaf

44. How many different ways can 3 people sit at a table with 5 seats?
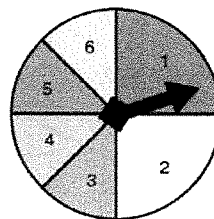
F 15   H 125

G 60   J 243

45. Seven students took a quiz. The number of correct responses from each is recorded below.

Al	Ben	Carl	Dana	Ed	Fay	Gil
13	18	11	12	15	14	15

What is the mean number of correct responses?

A 7   C 14

B 12   D 15

46. The spinner is spun once. What is $P(\text{number} \geq 5)$?

F $\dfrac{1}{8}$ H $\dfrac{3}{4}$

G $\dfrac{1}{4}$ J $\dfrac{7}{8}$

47. What is the next number in the sequence 2, 8, 32, 128, . . .?

A 134   C 512

B 160   D 640

48. An old coin increases in value by 4% each year. In 2005 it was worth $12. About how much is it worth in 2009?

F $13.17   H $14.04

G $13.60   J $15.32

49. Simplify $\sqrt{90}$.

A $3\sqrt{10}$ C $9\sqrt{10}$

B 12   D 45

50. y varies inversely as x. $x_1 = 3$, $y_1 = 40$, and $y_2 = 24$. Find x_2.

F 1.8   H 21

G 5   J 320

51. Simplify $\dfrac{y^2 - 25}{y - 5}$.

A $\dfrac{1}{y - 5}$ C $y - 5$

B $\dfrac{1}{y + 5}$ D $y + 5$

<u>Summer Assignment 2020</u>

Regular and Honors are recommended to work questions 1-51

APC Algebra II is recommended to work 1-51 and 52-79

52) For each of the given functions, create a new function $g(x) = 3\,f(x) + 1$

a) $f(x) = 2x + 1$ b) $f(x) = 2x^2 + 3x + 4$

Factor: (go to www.khanacademy.org and look up "factoring", there will be tons of videos for you to watch and learn factoring). If a problem is not factorable, please write "prime".

53) $x^2 + 6x + 9$ 54) $x^2 - x - 12$ 55) $2x^2 + 5x + 3$ 56) $x^2 - 9$ 57) $4y^2 - 36$

58) $n^2 - 6n - 27$ 59) $x^4 - 8x^2 - 9$ 60) $r^2 - 5r - 6$ 61) $x^2 + 9$

Solve for x:

62) $x^2 - x - 6 = 0$ 63) $x^2 - 13x + 36 = 0$ 64) $3x^2 - 6x - 9 = 0$

Questions 64 and 65 are bonus questions:

65) If x and p are both greater than zero and $4x^2p^2 + xp - 33 = 0$, then what is the value of p in terms of x?

a) $\dfrac{-3}{x}$ b) $\dfrac{-11}{4x}$ c) $\dfrac{3}{4x}$ d) $\dfrac{11}{4x}$

66) One of the roots of the polynomial $6x^2 + kx + 20 = 0$ is $\frac{-5}{2}$. What is the value of k?

67) Multiply $(3x^2 - 4y^2)(2x^2 + \frac{1}{2}y^2)$ Hint: FOIL

68) Solve for x:

$2^{2x} = 16$

Find the next three terms in the sequence

69) $9, 7, 5,$ _____, _____, _____

70) $3, 1, \frac{1}{3},$ ____, _____, _____

71) $\frac{1}{2}, \frac{1}{4}, \frac{1}{8},$ _____, _____, _____

The Regiment booster club sell beverages for $1.75 and candy for $1.50 at home games. Their goal is to have total sales of $525 for each game.

72a) Create an equation that is a model for the different numbers of beverages and candy that can be sold to meet the goal.

72b) Graph the equation, does the equation represent a function?

72c) If the regiment sell 100 beverages and 200 pieces of candy, will they meet their goal?

73) Expand $(4x^2 - 3y^2)^2$

74) A band is planning to record their first album. The initial start-up cost is $1500 and each download of the album will cost $4 to produce. They plan to sell each download for $10 each. How many downloadable albums must the band sell before they make a profit?

75)All 28 members at the local high school's Ski Club went on a one-day ski trip. Members can rent skis for $16.00 per day or snowboards for $19.00 per day.   The club paid a total of $478 for rental equipment.

a) Write a system of equations that represents the number of members who rented the two types of equipment.

b) How many members rented skis and how many rented snowboards?

76) Solve the system: (hint: multiply both sides of each equation by the LCM of 15 and use the "elimination method"

$$\frac{4}{3}x = -\frac{1}{5}y + 3$$

$$5 = \frac{2}{3}x - \frac{3}{5}y$$

77) Solve for n:

$$M = \sqrt{\frac{p(1-p)}{n}}$$

78) Solve for x:

$$-2y = \sqrt{3x^2 - 15}$$

79) Solve the Linear equation for y and graph: 2x- 4y = 6

80) Find the point slope form of the equation with the slope = -2 and point (-1,6)