Name_____ Date_____ Class _____

Accelerated Geometry CC Pretest

Handwritten work (left column):

1. distribute the neg.
$$8x - 2x - 3 = 4x + 1$$
$$6x - 3 = 4x + 1$$
$$2x = 4$$
$$x = 2$$

2. Perimeter → add all sides.
$$3m + 4 - m + 2m - 1$$
$$4m + 3$$

3. bike $= 1/3$ walk
   bike $= 5$ minutes
   substitute
$$5 = 1/3 w$$

4. common denominator (21)
$$-\frac{x}{7} \cdot \frac{3}{3} - \frac{2}{3} \cdot \frac{7}{7} = \frac{4}{21}$$
$$\frac{-3x}{21} - \frac{14}{21} = \frac{4}{21} \rightarrow -3x - 14 = 4$$
$$-3x = 18$$
$$x = -6$$

5. perpendicular lines have neg. reciprocal slopes.
$$y = mx + b$$
$$y = 2x + b$$
$$1 = 2(7) + b$$
$$-13 = b$$
$$*\, y = 2x - 13$$

Printed questions (right column):

Select the best answer.

1. Solve $8x - (2x + 3) = 4x + 1$.

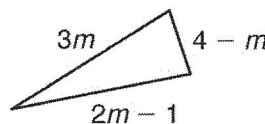   F $-\dfrac{1}{3}$ H 2 → substitute to check.

   G -1 J 4

2. Which expression represents the perimeter of the triangle below?

   3m, 4 − m, 2m − 1

   A $3 + 4m$ C $5 + 4m$

   B $3 + 6m$ D $5 + 6m$

3. The time it takes Jarvis to get to school on his bike is $\dfrac{1}{3}$ of the time it takes to walk. Which equation can be solved to find the time it takes Jarvis to walk to school if he can bike there in 5 minutes?

   A $3w = 5$ C $\dfrac{1}{3}w = 5$

   B $w = \dfrac{1}{3} \times 5$ D $w - \dfrac{1}{3} = 5$

4. Solve $-\dfrac{x}{7} - \dfrac{2}{3} = \dfrac{4}{21}$. → substitute to check.

   F -6 H $1\dfrac{1}{3}$

   G $-1\dfrac{1}{3}$ J 6

5. Which equation describes a line that passes through (7, 1) and is perpendicular to the line described by $y = -\dfrac{1}{2}x + 3$? new slope = 2

   A $y = 2x - 13$ C $y = 2x - 6$

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

6. Vertical stretch
changes the y-vale.
*stretch = multiply by 2

6. The points $\{(-2, 1), (0, 3), (1, 2)\}$ are on the graph of function f. What are the coordinates of these three points after a vertical stretch by a factor of 2?

F $\{(-4, 1), (0, 3), (2, 2)\}$

G $\left\{\left(-2, \dfrac{1}{2}\right), \left(0, \dfrac{3}{2}\right), (1, 1)\right\}$

H $\left\{(-1, 1), (0, 3), \left(\dfrac{1}{2}, 2\right)\right\}$

J $\{(-2, 2), (0, 6), (1, 4)\}$

7. Solve the inequality or substitute.

$4x - 7 < 5$ *Remember
$4x < 12$ if you mult.
$x < 3$ or divide by
        a neg. the
        inequality
        sign flips.

7. Which is NOT a solution to the inequality $4x - 7 < 5$?

A -2 C 1

B 0   D 3 ← not < 3.

8. $S = 1.50x$
$L = 20$ $\}$ $20 = 1.50x$
        $13^1/_3 = x$

8. Lorena and Sebastian are both five years old. Every year they each get a cash present from their neighbor. Sebastian gets $1.50 for every year in his age, and Lorena gets $20. How old will they be when Sebastian gets more money than Lorena?

F 9   H 14

G 13   J 20

9. Horizontal translation means right or left. BUT will be put in parenthesis as OPPOSITE!

9. Which of these describes the transformation in terms of $f(x)$?

Horizontal translation 6 units left

A $f(x) - 6$ C $f(x + 6)$

B $-6f(x)$ D $f(x - 6)$

Handwritten notes (left column)

10. correlation acts like slope.
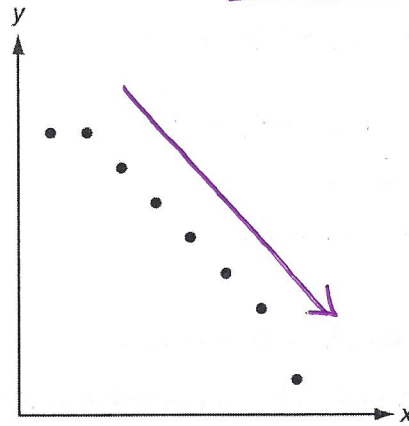
$$-1 \leq r \leq 1$$

goes down ← →goes up

r = 0 (no correlation)

11. x-int. means y = 0
y-int. means x = 0

x = 3 when y = 0
y = 2 when x = 0

12. IS a Function! (each x has a different y... x's don't repeat.)

Domain = x-values
Range = y-values

Right column

10. Which situation best fits the graph below and what type of correlation is it?

F distance traveled vs. cost of gas; negative correlation

G distance traveled vs. cost of gas; positive correlation

H time traveled vs. distance from destination; negative correlation

J time traveled vs. distance from destination; positive correlation

11. A function has x-intercept 3 and y-intercept 2. Which of the functions below could be this function?

A $4 + 3x = 2y$

B $2x - 3y = -6$

C $2y + 3x = 4$

D $3y - 6 = -2x$

12. The scoring for a football game by quarters was recorded as the ordered pairs {(1, 7), (2, 10), (3, 21), (4, 21)}. Which of the following statements is true?

F The relation is a function with domain {1, 2, 3, 4}.

H he relation is a function with domain {7, 10, 21}.

G The relation is a not a function.

J The relation is a function with domain {1 ≤x ≤4}.

13. Plan A = 2x + 10

    Plan B = .25x + 40

    2x + 10 = .25x + 40

    1.75x = 30

    x = 17.14

14. Dependent = same
    Independent = different
    Inconsistent = parallel
    Consistent = cross at
        least once.

15. Substitute points
    (must work for both!)

16. $\left(\dfrac{x^2 y}{4x^5}\right)^{-2} \rightarrow \left(\dfrac{y}{4x^3}\right)^{-2}$

$= \dfrac{y^{-2}}{4^{-2}x^{-6}} = \dfrac{16x^6}{y^2}$

13. A local video store has two new renting plans. Plan A charges a $10 monthly fee and $2 for every movie rented. Plan B charges $40 per month but then each movie rented is only 25¢. How many movies must be rented in a month to make plan B the cheaper option?

  A 17   C 28

  B 18   D 29

14. Classify the system $\begin{cases} y = 2x + 3 \\ y = -2x + 3 \end{cases}$.

  F inconsistent $\rightarrow$ doesn't cross

  G consistent and independent

  H inconsistent and dependent

  J consistent and dependent $\rightarrow$ same line

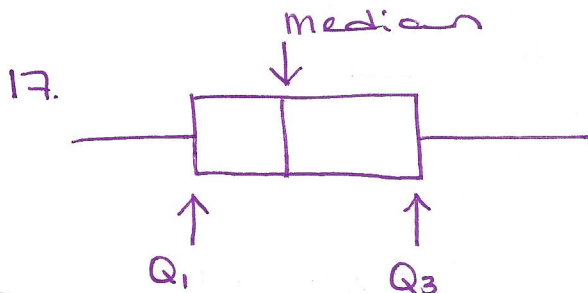15. Which point is a solution of $\begin{cases} y - 3x \geq 2 \\ y \leq x + 9 \end{cases}$?

  A (−2, 8)   C (4, −1)

  B (−1, 4)   D (8, −2)

16. Which of the following is NOT equivalent to $\left(\dfrac{x^2 y}{4x^5}\right)^{-2}$?

  ✓A $\left(\dfrac{y}{4x^3}\right)^{-2}$ C $\left(\dfrac{16x^5}{y^2}\right)$

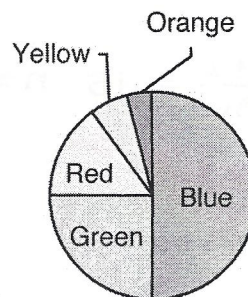 ✓B $\left(\dfrac{4x^3}{y}\right)^{2}$ ✓D $\left(\dfrac{4x^5}{x^2 y}\right)^{2}$

_____

17. total of 28
multiply

17. Ava's class was surveyed to help figure out what color their school banner should be. If a total of 28 students were surveyed, how many chose green?

School Banner

$\frac{1}{4} \cdot 28 =$

A 4 students   C 7 students

B 6 students   D 10 students

17. Which of the following pieces of information can be obtained from a box-and-whisker plot?

F the mean of the data set

G the number of values in the data set

H the median of the data set

J the mode of the data set

median

17.

Q_1 Q_3

18. Graphing calculator
"Linear Regression"

18. The table shows the number of customers at an ice cream shop and the number of sundaes sold. Which is the best line of fit for the data?

Customers	10	12	20	24
Sundaes	60	70	118	148

F $y \approx 6.24x - 4.0$ H $y \approx 6.82x - 11.0$

G $y \approx 6.0x - 1.3$ J $y \approx 4.0x - 48.7$

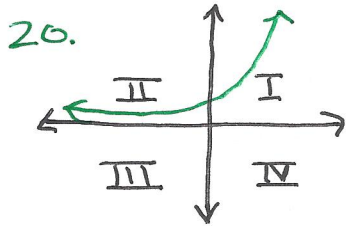## Handwritten (left column)

19. Geometric
Sequence $= a_1(r)^{n-1}$

↗ 1st term   ↑ ratio   ↘ #term

$a_1 = 96$ $r = \dfrac{72}{96} = .75$ $n = 5$

$a_5 = 96\,(.75)^{5-1}$

20.

$f(x) = 2(4)^x$
growth

21. rate of change = slope

Interval: $[0, 3]$
↓
$(0, \quad)(3, \quad)$

22. Solve systems
1. Graphing
2. Substitution
3. Elimination

$2x + (-4x + 14) = 8$
$-2x + 14 = 8$
$-2x = -6$
_____
$x = 3$

23. Exponential Growth
$y = a \cdot (r)^t$
$y = 100(2)^t$

Printed (right column)

19. What is the 5th term in the geometric sequence 96, 72, 54, ...?

A 30   C 36

B $30\dfrac{3}{8}$ D $40\dfrac{1}{2}$

20. Which two quadrants is the function $f(x) = 2(4)^x$ graphed in?

F Quadrants I and II

G Quadrants II and III

H Quadrants III and IV

J Quadrants I and IV

21. Which function has the higher rate of change over the interval [0, 3]?

A $y = 2x + 4$ B $y = -x - 3$

C $y = 2x^2 - 1$ D $y = 2(3)^x$

22. What is the x-value for the solution to the system of equations below?

$$\begin{cases} 2x + y = 8 \\ -4x - y = -14 \end{cases} \longrightarrow y = -4x + 14$$

A –3   C 3

B –2   D 4

23. A research biologist starts with 100 bacteria and watches it double in number each day. Which equation will give the number of bacteria as a function of x, the number of days?

F $y = 2^x$

G $y = 100^x$

H $y = 2(100)^x$

J $y = 100(2)^x$

41. B