Instructions: Answer each question on loose leaf, quad-ruled (graph paper), headed properly and written in lead-graphite. Remember to fold paper along the center, work exercises in order top to bottom, left column then right column. Staple multiple pages

1. The tubes of lip gloss in Mr. Ford's 4th period is directly proportional to the number of girls in 4th period. There are 35 tubes of lip gloss for 14 girls. Determine the variation constant and write a variation equation for the tubes of lip gloss to the girls in Period 4.

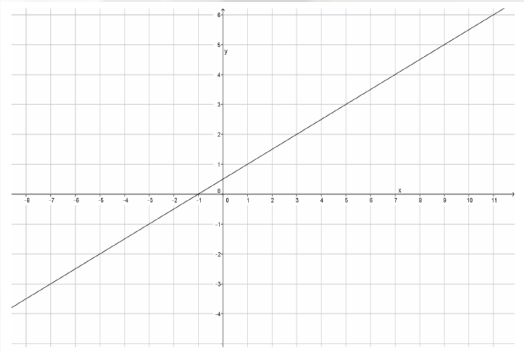2. Determine the slope of the line expressed in the table:

X	-3	0	3	6	9
y	4	2	0	-2	-4

3. Determine the slope of a line between the points $(-6,6)$ and $(12,-6)$; use the slope formula $m = \dfrac{(y_2 - y_1)}{(x_2 - x_1)}$

4. See the graph at below:

   Find the rate of change (slope) of the line. Enter only the number in the box below (the $m =$ is provided for you).

   $m = \boxed{}$

5. See the graph below

   The table shows a proportional relationship. Write an equation that describes the relationship.

Acres	5	8	15
Bushels of Wheat	140	224	420

6. State the property that justifies each step of the following solution:

$6x - 2(3 - x) = 13$

$6x + {}^-2(3 + {}^-x) = 13$

$6x + {}^-6 + 2x = 13$

$6x + 2x + {}^-6 = 13$

$8x + {}^-6 = 13$

$8x + {}^-6 + 6 = 13 + 6$

$8x + 0 = 19$

$8x = 19$

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7. $\dfrac{24}{38} = $; write as a decimal rounded to the nearest 100th.

8. $13 - \dfrac{8}{3} = $; write as an improper fraction and a decimal rounded to nearest 10th.

9. Write as a mixed number, reduced: $4.6\overline{7}$

10. Translate into a formula: "*Dynamic Pressure is one-half of the product of density* (ρ) *and the square of velocity (v).*"

11. The University of Michigan's Devin Bush, Jr. ran the 40 yard dash in 4.43s at the NFL Combine. What was his speed in $\dfrac{ft}{s}$?

12. Write as exponents positive: $\dfrac{12x^5 y^{-5}}{8x^8 y^{-8}}$

13. Write as exponents positive: $-9x^7 y^4 \bullet -6y^{-8} x^3$

14. Multiply, writing exponents positive: $\left(-9n^5\right)^3$

15. Solve: $11 - \dfrac{8}{5}g = -3$; write as an improper fraction, mixed number, and decimal rounded to the nearest 10th.

16. Determine the value of the unknown that makes the statement true: $\dfrac{5}{2}x - 10 + \dfrac{3}{4}x = 2 + \dfrac{5}{2}x + 3 - \dfrac{1}{2}x$

17. A square has an area of $729m^2$; what is the square's perimeter?

18. A cube has a volume of $2197in^3$; what is the cube's surface area?

19. In scientific notation, what is the sum of $2.8 \bullet 10^5 + 3.5 \bullet 10^4$?

20. Evaluate $\left(7.9 \bullet 10^6\right)\left(4.0 \bullet 10^2\right)$; write in scientific notation.

21. Estimate the difference: $\sqrt{39} - \sqrt{70}$

22. How many times larger is the radius of a mercury atom, $1.5 \bullet 10^{-10}$, than the radius of a hydrogen atom, $2.5 \bullet 10^{-11}$?

23. Solve the equation: $0.4\left(2x + \dfrac{1}{2}\right) = 3\left[0.2x + (-2)\right] - 4$

24. Find four consecutive *multiples* of 4 such that twice the sum of the least and greatest exceeds three times the least by 32. *hint: a multiple of 4 is 4 more than the previous multiple; e.g., if the first multiple is x, the next would be x+4....*