Simplify all answers and show your work! You may use MathGV as a tool.

1. In the linear equation $6x + 5y = 30$, what is the x-intercept? _________ y-intercept? _________

2. In the equation $8x - 7y = -42$, what is the value of the slope? _________

3. Lines that are parallel have the same ____________.

4. In the equation $Ax + By = C$, what is the value of the slope? _________

Find the equations of the lines with the given properties:

5. Passing through points (-1, 3) and (2, 5).

6. Passing through (3, 7) and having a slope of $-\frac{7}{4}$.

7. Passing through (0, 1.7) and having a slope of 3.5.

8. Solve for $x$: $2(x + 3) - 5 = 3x + 4$

9. Graph $2x + 3y = 12$

10. Graph the following system of equations.

   and find the point of intersection.

   \[
   \begin{align*}
   y &= 2x + 3 \\
   y &= \frac{1}{3}x - 2
   \end{align*}
   \]

11. Solve the system of equations:

   \[
   \begin{align*}
   3x - 2y &= 16 \\
   7x + 4y &= 20
   \end{align*}
   \]
Determine if the following pairs of lines cross in one point, are parallel, or are the same line.

12. \[ \begin{align*}
    x + 2y &= 15 \\
    3x + 6y &= 30
\end{align*} \]

13. \[ \begin{align*}
    2x - 3y &= 18 \\
    5x + 7y &= 3
\end{align*} \]

14. \[ \begin{align*}
    x + y &= 12 \\
    0.5x + 0.5y &= 6
\end{align*} \]

15. An internet company offers DSL service for $39.99 per month with a $50 one-time set-up fee. Let “y” represent the cost the customer has paid after “x” months of DSL service.

a) What is the rate of change of cost per month?

b) Find the equation of the line y.

c) What is the x-value for one year?

d) How much has the customer paid after one year of DSL service?

e) After how many months of service has the customer spent $1169.72 on DSL service from this internet company?

16. Flying lessons cost $645 for an 8-hour course and $1425 for a 20-hour course. If x represents the length of the course in hours and C(x) represents the cost of the course, find the following.

a) What is the rate of change of cost per hour?

b) Find the equation of the line C(x).

c) If the rate of change remains the same, what is the cost of a 12-hour course?

d) How many hours is a course that costs $1295?

17. The amount of money a couple has spent over a period of “x” months on membership in an exercise club is given by the equation \( C(x) = 80x + 120 \). Find the following.

a) How much has the couple spent after 8 months of membership?

b) The couple was charged a joiner’s fee when they first joined the exercise club. How much was this joiner’s fee?

c) How much is the couple paying per month?

Bonus (5 pts): Refer to #15 and #17. How much cheaper is it to have the first year of DSL than to have the first year’s membership in the exercise club? (Thus confirming that it’s cheaper to be physically lazy!) ☺