Select the letter of the correct answer.

1. Which gives the correct meaning of the slope $-3$?
   - A) up 3 left 1
   - B) down 3 right 1
   - C) up 3 right 1
   - D) down 3 left 1

2. Horizontal lines have slope
   - A) positive
   - B) negative
   - C) zero
   - D) undefined

3. The line to the right has slope
   - A) positive
   - B) negative
   - C) zero
   - D) undefined

Use the points to answer questions 4 – 8.

$\{(0, -5), (1, -3), (2, -1), (3, 1)\}$

4. Graph the points
5. Sketch the line that contains the points.
6. The $y$-intercept is ____________
7. Give the slope of the line ____________
8. This slope of this line is ____________________
   - positive/negative/zero/undefined

Use the points to answer questions 9 – 11.

```
<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>3</td>
</tr>
<tr>
<td>-3</td>
<td>-2</td>
</tr>
<tr>
<td>-3</td>
<td>5</td>
</tr>
</tbody>
</table>
```

8. Graph the points
9. Sketch the line that contains the points.
10. The $y$-intercept is ________________
11. This slope of this line is ________________
    - positive/negative/zero/undefined
Give the y-intercept & slope of the line. (3 points each answer)

12. y-intercept ________
slope  ________

13. y-intercept ________
slope  ________

14. y-intercept ________
slope  ________

15. y-intercept ________
slope  ________
Write the algebraic expression. (6 points each)

1. 6 is less than the product of a number and 5
   __________________________

2. 6 less than a number squared
   __________________________

3. 6 is no more than the square root of a number
   __________________________

4. 6 is at least twice a number
   __________________________

5. In the linear equation $y = 2x + 4$: (3 points each)
   a) __________ is the $y$-intercept
   b) __________ is the slope

6. Sketch a line that has: (3 points each)
   a) a positive slope
   b) an undefined slope

   ![Sketch of a line with a positive slope]

   ![Sketch of a line with an undefined slope]

7. a) Sketch the line $y = 3$ (3 points each)
   b) What is the slope of the line? __________

   ![Graph with the line $y = 3$]
Graph the following lines (6 points each)

8. \( y = -\frac{1}{4}x + 3 \)

9. \( y = \frac{2}{3}x - 3 \)

10. \( y = \frac{1}{4}x - 1 \)

11. \( y = -2x + 1 \)

12. \( y = 4x \)

13. \( y = -\frac{1}{3}x \)
ALGEBRA 1
CHECK FOR UNDERSTANDING 3.3

1. < and > graph as _______________________ lines
   broken/solid

Solve for x:
2. \( \frac{1}{3}(6x + 3) \geq -11 \) \[ \underline{\quad} \]
3. \( \frac{3x}{2} - 5 = -8 \) \[ \underline{\quad} \]
   Work:
   Work:

Graph the inequality.
4. \( x \leq -3 \)
   ![Graph for x \leq -3]

5. \( y \leq 3x \)
   ![Graph for y \leq 3x]

6. \( y > -\frac{2}{3}x + 4 \)
   ![Graph for y > -\frac{2}{3}x + 4]

7. \( y \geq 4 \)
   ![Graph for y \geq 4]
   (over)
8. a) \( y \leq -x + 3 \)

b) Point A________________ in the solution set because ____________

             __________________

c) Point B________________ in the solution set because ____________

             __________________

d) Point C________________ in the solution set because ____________

             __________________

9. a) \( y > 2x - 4 \)

b) Point A________________ in the solution set because ____________

             __________________

c) Point B________________ in the solution set because ____________

             __________________

d) Point C________________ in the solution set because ____________

             __________________
For problems 1 & 2, solve for $y$.

1. $2x + y = 10$  \hspace{1cm} \underline{\hspace{3cm}}(3)

2. $4x - 2y = 8$  \hspace{1cm} \underline{\hspace{3cm}}(9)

For problems 3 – 7:
   
   a) Rewrite from standard to slope-intercept form
   b) Identify the type of line: slanted, horizontal or vertical \(3 \text{ points}\)
   c) Identify the slope & $y$-intercept \(6 \text{ points}\)
   d) Graph the line \(6 \text{ points}\)

3. $5x - y = 2$
   
   a) slope-intercept form: \underline{\hspace{3cm}}(6)
   b) type of line: \underline{\hspace{3cm}}
   c) slope: _____ $y$-intercept: _____
   d) 

4. $8x - 4y = 16$

   a) slope-intercept form: \underline{\hspace{3cm}}(9)
   b) type of line: \underline{\hspace{3cm}}
   c) slope: _____ $y$-intercept: _____
   d) 

Show all work for credit
5. \(-2x + 4y = 4\)
   a) slope-intercept form: _________________(12)  
   b) type of line: ________________  
   c) slope: ______  
   y-intercept: ______  
   d) 

6. \(4y - 8 = 0\)
   a) slope-intercept form: _________________(9)  
   b) type of line: ________________  
   c) slope: ______  
   y-intercept: ______  
   d) 

7. \(x + 3y = 0\)
   a) slope-intercept form: _________________(6)  
   b) type of line: ________________  
   c) slope: ______  
   y-intercept: ______  
   d)
Select the correct mathematical representation. (4) answers will not be used.
(2 points each)

______ 1. 3 less than a number is no more than 6
   \[ A \quad 3 > x + 6 \quad B \quad 3 - x \geq 6 \]
   \[ C \quad x - 3 \geq 6 \quad D \quad 3 < x + 6 \]
   \[ E \quad x - 3 < x + 6 \quad F \quad x - 3 \leq 6 \]

_____ 2. 3 is less than 6 more than a number
   \[ C \quad x - 3 \geq 6 \quad D \quad 3 < x + 6 \]
   \[ E \quad x - 3 < x + 6 \quad F \quad x - 3 \leq 6 \]

3. Solve for \( x \): \(-3 - (x + 2) = 7 + 2x\) 
   \[ \text{_______________(8)} \]

4. Solve for \( y \): \(3x - 2y = 12\) 
   \[ \text{__________________________(4)} \]

5. Select the correct statement:
   \[ A \quad \text{A vertical line has an undefined slope} \]
   \[ B \quad \text{A horizontal line has an undefined slope} \]
   \[ \text{__________(2)} \]
Graph the line & then write the equation of the line.

6. A line with slope -3 and y-intercept 5
   Equation: _____________________(8)

7. A line with slope 0 through the point (2, -3)
   Equation: _____________________(4)

8. A line with \( m = \frac{3}{4} \) and \( b = 0 \)
   Equation: _____________________(6)

9. A line thru (-3, -2) with slope undefined
   Equation: _____________________(4)

10. A line with slope -3 through the point (2, -3)
    Equation: _____________________(8)

11. A line with slope \( \frac{1}{2} \) through the point (2, 3)
    Equation: _____________________(8)
Give the Equation of the Line

12. ____________________  (4)

[Graph of a line]

13. ____________________  (2)

[Graph of a vertical line]

For problems 14 & 15:
a) Give the inequality of the line

b) – d) Identify points in/not in the solution set. (2 points each)

14. (a) ____________________  (8)

[Graph showing a shaded region]

15. (a) ____________________  (6)

[Graph showing a shaded region]

b) (-3, 0) is not in the solution set because

______________________________

b) (-3, 0) is in the solution set because

______________________________

c) (2, 1) is in the solution set because

______________________________

c) (2, 1) is not in the solution set because

______________________________

d) (4, 3) is in the solution set because

______________________________

d) (4, 3) is not in the solution set because

______________________________
For problems 1 – 6:

- Graph the line that contains the given points
- Give the slope
- Give the x- and y-intercepts
- Write the equation of the line

1. a) \((-2, -2)\) and \((2, 2)\)
   b) slope: __________
   c) x-intercept: __________
   d) y-intercept: __________
   e) equation: ________________

2. a) \((-1, 4)\) and \((3, 4)\)
   b) slope: __________
   c) x-intercept: __________
   d) y-intercept: __________
   e) equation: ________________

3. a) \((2, -2)\) and \((-1, 4)\)
   b) slope: __________
   c) x-intercept: __________
   d) y-intercept: __________
   e) equation: ________________

4. a) \((4, -1)\) and \((4, 3)\)
   b) slope: __________
   c) x-intercept: __________
   d) y-intercept: __________
   e) equation: ________________
5. a) 
\[\begin{array}{c|c}
  x & y \\
  \hline 
  -3 & -2 \\
  0 & -2 \\
  3 & -2 \\
\end{array}\]

b) slope: ________

c) x-intercept: ________

d) y-intercept: ________

e) equation: ________________

6. a) 
\[\begin{array}{c|c}
  x & y \\
  \hline 
  1 & 2 \\
  2 & 0 \\
  3 & -2 \\
\end{array}\]

b) slope: ________

c) x-intercept: ________

d) y-intercept: ________

e) equation: ________________

7. a) Graph the line with y-intercept (0, -4) and x-intercept (4, 0).

b) Give the equation of the line

8. Graph the line \(2x - 3y = -3\)

Work:
ALGEBRA 1
CFU 4.4

1. Graph the line \( y = \frac{-1}{2}x + 2 \)
2. Give the slope of the line ________
3. Give the slope of a parallel line ________
4. Graph the parallel line with \( y \)-intercept \(-3\)
5. Give the equation of the parallel line
   __________________________

6. Graph the line \( y = -3x + 4 \)
7. Give the slope of the line ________
8. Give the slope of a parallel line ________
9. Graph the parallel line through \((-1, -1)\)
10. Give the equation of the parallel line
    __________________________

Use the graph to the right to answer questions 11 – 14.

11. Sketch the parent linear equation, \( y = x \). Label it \( L_1 \)

12. Give the vertical translation of \( L_2 \) from \( L_1 \) ______
    A translated up 4
    B translated down 4

13. Give the equation of \( L_2 \) __________________________

14. \( L_1 \) and \( L_2 \) ________ parallel because
    __________________________
Matching. Match the graph with its equation/inequality. Some answers will not be used.

A \( y < -3x + 2 \)  \hspace{1cm} B \( y = 2x \)  \hspace{1cm} C \( y \leq x + 4 \)
D \( y \leq -x + 4 \)  \hspace{1cm} E \( y = 2 \)  \hspace{1cm} F \( y > -3x + 2 \)

15. ________  \hspace{2cm} 16. ________  \hspace{2cm} 17. ________

18. a) Graph the line with x-intercept \((-3, 0)\) and y-intercept \((0, 4)\). Label it \(L_1\).
   
   b) Graph the line parallel to the given line with y-intercept \((0, -4)\). Label it \(L_2\).
   
   c) Give the equation of \(L_2\) ______________________

For problems 19 – 22, list all the numbers in the solution set. Numbers may be used more than once.

5  \hspace{1cm} -1  \hspace{1cm} 6  \hspace{1cm} -3  \hspace{1cm} 0

19.  \hspace{1cm}  \hspace{1cm}  \hspace{1cm}  \hspace{1cm}

20. \( x < -1 \)  \hspace{1cm}  \hspace{1cm}

21. \( x \) is at least 0  \hspace{1cm}  \hspace{1cm}

22. \( x \) is no more than \(-3\)  \hspace{1cm}  \hspace{1cm}
ALGEBRA 1
CHECK FOR UNDERSTANDING 4.5

Give the slope of the following.
1. \( y = \frac{-x}{2} + 2 \) \[ \underline{\hspace{2cm}} \]
2. \( x = -4 \) \[ \underline{\hspace{2cm}} \]

5. \[
\begin{array}{|c|c|}
\hline
x & y \\
\hline
-1 & 4 \\
0 & 1 \\
1 & -2 \\
2 & -5 \\
\hline
\end{array}
\]

6. Given: \( y = -\frac{2}{3}x + 4 \)
   a) Give the slope of the line parallel to the given line \[ \underline{\hspace{2cm}} \]
   b) Give the slope of the line perpendicular to the given line \[ \underline{\hspace{2cm}} \]

7. Graph the line \( y = \frac{-1}{2}x + 2 \)
8. Give the slope of the line \[ \underline{\hspace{2cm}} \]
9. Give the slope of a perpendicular line \[ \underline{\hspace{2cm}} \]
10. Graph the perpendicular line with \( y \)-intercept \(-3\)
11. Give the equation of the perpendicular line \[ \underline{\hspace{2cm}} \]

12. Graph the line \( y = -3x + 4 \)
13. Give the slope of the line \[ \underline{\hspace{2cm}} \]
14. Give the slope of a parallel line \[ \underline{\hspace{2cm}} \]
15. Graph the parallel line through \((-3, -1)\)
16. Give the equation of the parallel line \[ \underline{\hspace{2cm}} \]
17. Let Line 1 be \( y = x \). Which statement correctly describes the transformations from Line 1 to Line 2?

A. Line 2 is shifted up 1 and is three times steeper than Line 1
B. Line 2 is shifted up 1 and is \( \frac{1}{3} \) less steep than Line 1
C. Line 2 is shifted down 1 and is three times steeper than Line 1
D. Line 2 is shifted down 1 and is \( \frac{1}{3} \) less steep than Line 1

18. Give the equation of Line 2

\[ \text{Let Line 1 be } y = x \text{ and Line 2 be } y = \frac{1}{3}x - 1. \] Complete the statements to compare the graph of Line 2 to the graph of Line 1.

19. Sketch both lines. Label them appropriately.

20. The graph of Line 2 is ________ than the graph of Line 1.
   A. steeper  B. less steep

21. The graph of Line 2 is ________ from the graph of Line 1.
   A. shifted up 1 unit  B. shifted down 1 unit
   C. shifted up \( \frac{1}{3} \) unit  D. shifted down \( \frac{1}{3} \) unit

22. Graph Line 1, \( y = x \)

23. The slope of Line 2 is ________ than the slope of Line 1.
   A. two times steeper  B. one-half less steep
   C. two less  D. two more

24. The \( y \)-intercept of Line 2 is ________ than the \( y \)-intercept of Line 1.
   A. two times  B. one-half
   C. two less  D. two more

25. Give the equation of Line 2

\[ \text{Let Line 1 be } y = x. \text{ The graph of Line 2 is shown. Complete the statements to compare the graph of Line 2 to the graph of Line 1.} \]
Let Line 1 be $y = x$. The graph of Line 2 is:
- shifted up three units from the graph of Line 1
- parallel to Line 1

26. Plot two points line on Line 2. The points must be integers.
27. Give the equation of Line 2 _____________________