Lines and systems Worksheet

Algebra

Name _____ Date _____

Warm-up

1. Find the slope through $(3, 3)$ and $(6, 0)$.

2. What's the y-intercept of $y = 5x - 4$?
   (A) 5 (B) 0 (C) 1 (D) -4

3. Write the line with slope 6 and y-intercept 8.

4. Is $(8, 6)$ a solution of $x + y = 14$ and $x - y = 2$?
   (A) No (B) Yes

5. A line has slope 8 and passes through $(0, -6)$. What's y when $x = 1$?

Practice

6. A pool holds 101 L at minute 0 and 171 L at minute 7. How many liters per minute does it fill?

7. Rewrite $3x + 8y = 5$ as $y = mx + k$. What is m?

8. Find b: the line $y = -3x + b$ passes through $(-4, 15)$.

9. Solve: $3x + 6y = 27$ and $x + y = 3$.
   $x =$ _____ $y =$ _____

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10. What is the slope of $y = -3x - 5$?
    (A) -8 (B) -3 (C) -5 (D) x

11. Where does $y = 6x - 36$ cross the x-axis? Give x.

12. Find the line through $(2, -3)$ and $(5, 3)$.

13. Solve: $y = 3x + 4$ and $x + y = 4$.
    $x =$ _____ $y =$ _____

Challenge

14. The points $(3, -1)$, $(5, 5)$ and $(7, k)$ are on one line. Find k.

15. A plumber's bill is $y = 34x + 30$, where x is hours. What's the bill, in dollars, for a job twice as long as a 3-hour one?

16. A plan costs \$35 for 3 GB and \$77 for 10 GB. What's the base fee, in dollars?

17. Tickets: 23 sold, adults \$15, kids \$7, total \$217. How many were adults?

18. A line through $(3, -4)$ has slope -2. What is y when $x = 6$?

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Lines and systems Worksheet: Answer Key

Algebra

1. -1

   $\frac{0-(3)}{6-(3)}$.

2. (D) -4

   It's the value of y when $x = 0$.

3. $y = 6x + 8$

   $y = mx + b$.

4. (B) Yes

   $8 + 6 = 14$ and $8 - 6 = 2$.

5. 2

   $y = 8x - 6$ at $x = 1$.

6. 10

   Slope: $\frac{171 - 101}{7}$.

7. $-\frac{3}{8}$

   Move the x term and divide by 8.

8. 3

   $15 = -3(-4) + b$.

9. $x = -3$, $y = 6$

   Multiply the second by 3, then subtract.

10. (B) -3

    In $y = mx + b$, the coefficient of x is the slope.

11. 6

    Set $y = 0$: $6x - 36 = 0$.

12. $y = 2x - 7$

    Slope first, then substitute a point.

13. $x = 0$, $y = 4$

    Replace y: $x + 3x + 4 = 4$.

14. 11

    The slope is 3. Use it for the next step of 2.

15. 234

    Twice as long is 6 hours. Don't double the whole bill, because the fee doesn't double.

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16. 17

    The slope is 6 per GB. Substitute a point and solve for the fee.

17. 7

    $x + y = 23$ and $15x + 7y = 217$.

18. -10

    Going 3 right changes y by -2×3.

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