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Classwork: Solve equations

Solve for the value of x.

1. $2x - 7 = x$

2. $12 = x - 5x$

3. $\frac{1}{2}(5 - x) = 2x$

4. $17 = \frac{1}{2}x + 4x - 10$

5. What is the slope and y-intercept of $y = 3x - 5$?

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6. Convert to slope-intercept form: $6x + 3y = 9$

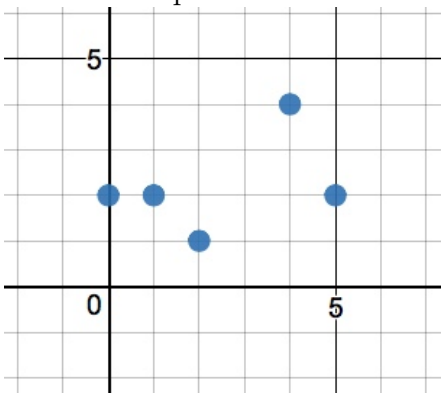
7. Given $f(x) = 3x + 17$. Simplify $f(1)$.

8. Given $g(x) = -\dfrac{(2 + 4x)}{3}$. Simplify $g(-1)$.

Answer #9 and 10 with ordered pairs, in the form (x, y).

9. In the graph shown, what point has the greatest y value?

10. Name three points with the same y value.



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Graphing a linear function

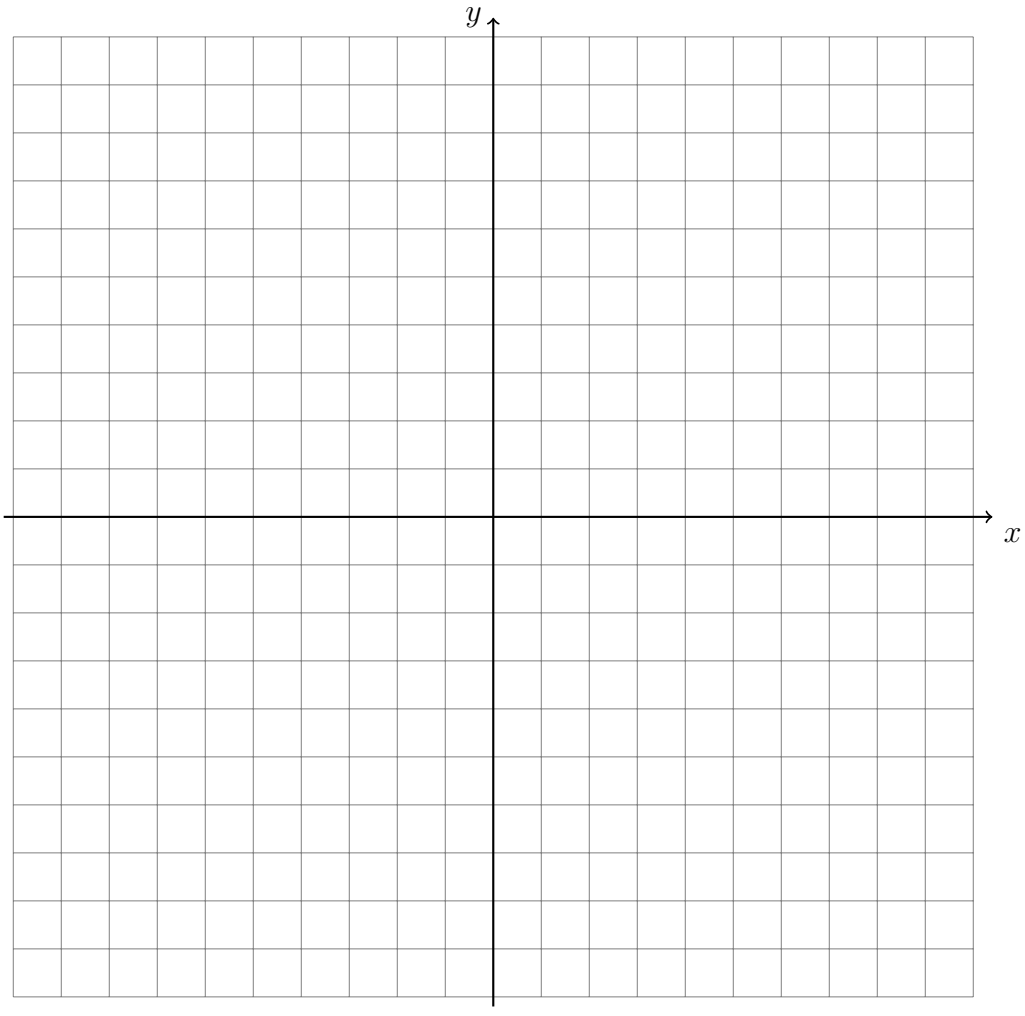
11. On the graph, sketch the lines and answer the question.

    (a) Sketch line 1 given by $y = 2x + 4$.

    (b) Sketch line 2 given by $x + 2y = 3$.

    (c) Label the intersection of line 1 and line 2 as P.

    (d) Are the two lines parallel, perpendicular, or neither?



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12. Graph the function $f(x) = \frac{1}{2}x + 4$.

(a) Write down the y-intercept.

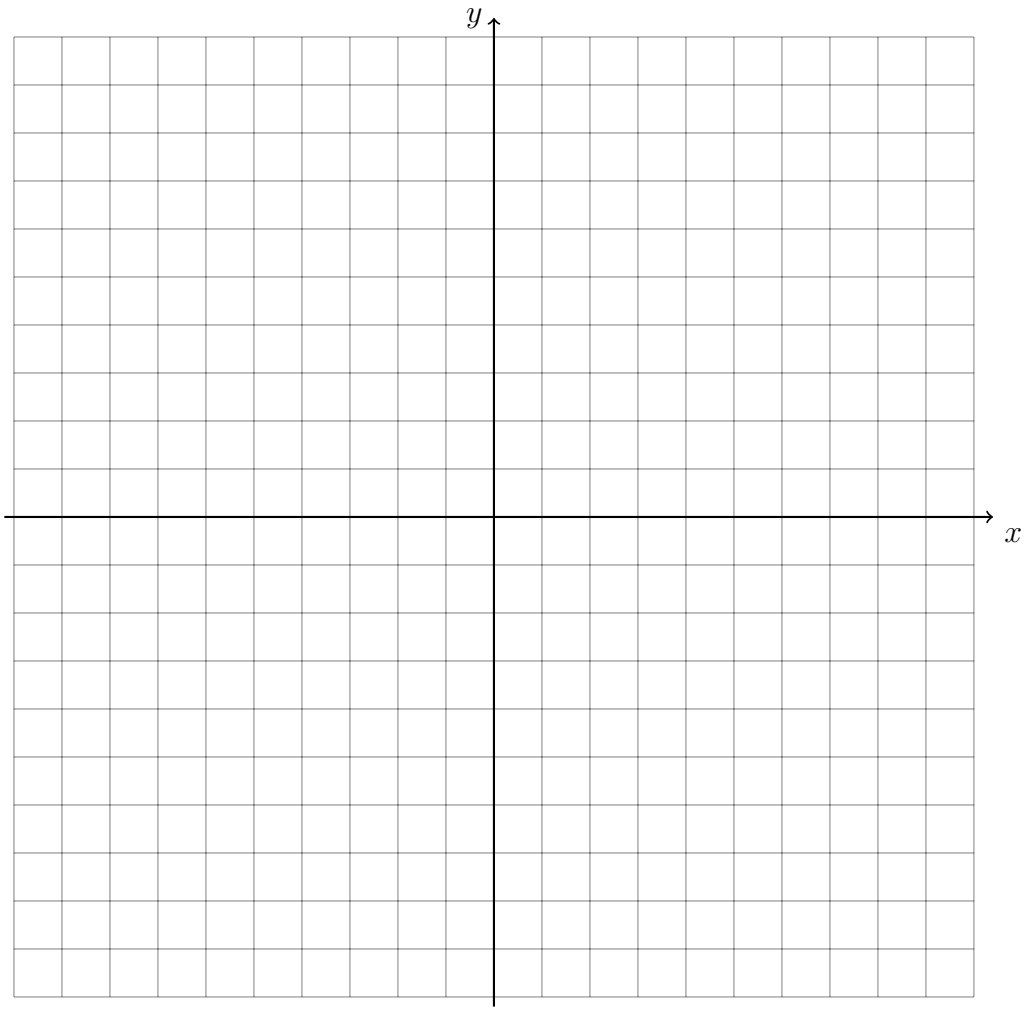
(b) Write down the slope of $f(x)$.

(c) Label the intersection of $f(x)$ with the x-axis as the point P.

(d) Mark the point $Q(6, 2)$.

(e) A second line, $g(x)$, is parallel to $f(x)$ and passes through point Q. Plot $g(x)$ on the graph.

(f) What is the y-intercept of $g(x)$?



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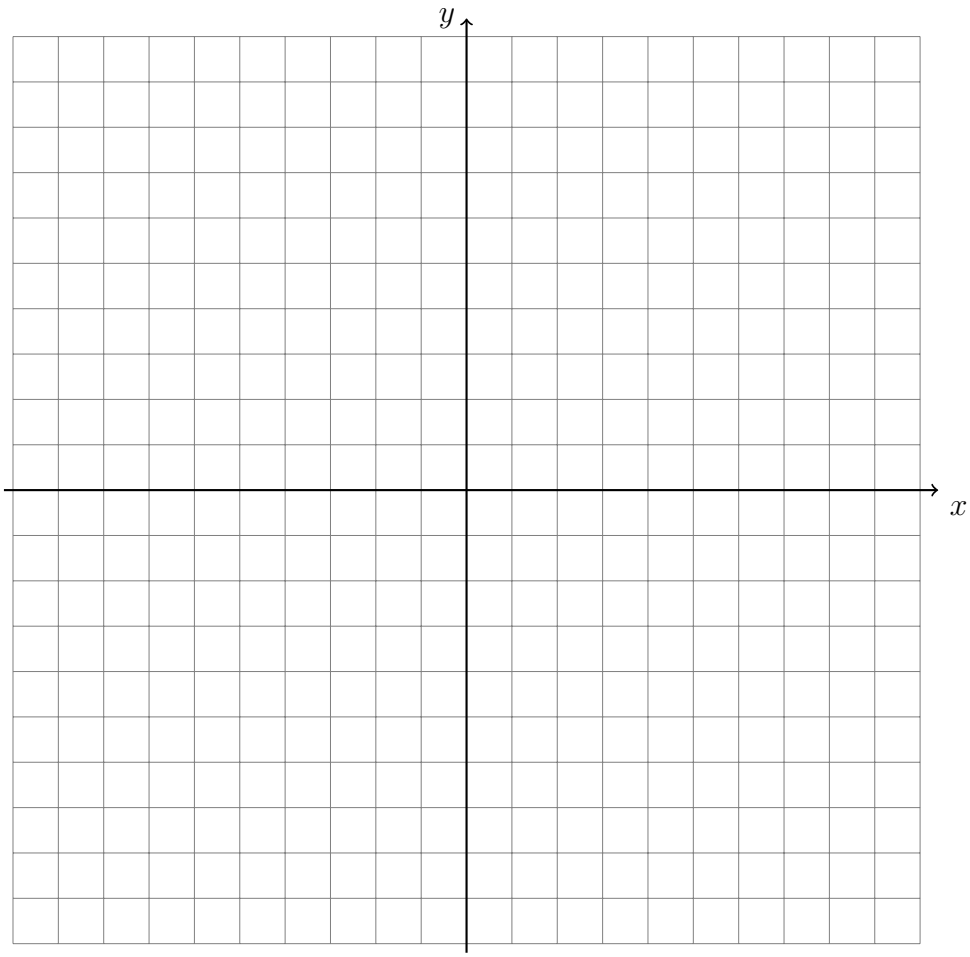
13. (a) Mark the point $P(3, -2)$ on the graph.
    (b) The line L_1 has a y-intercept of 2 and passes through point P. Graph L_1.
    (c) What is the slope of line L_1?

    (d) What is the equation of line L_1?

    (e) A second line, L_2 has the equation $x - y = -9$. Plot L_2 on the graph.
    (f) What is the slope of L_2?

    (g) Are the two lines L_1 and L_2 parallel, perpendicular, or neither?



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Point-slope form

14. What is the equation of the line with a slope of 2 passing through the point $(2, 1)$?

15. What is the equation of a line parallel to $y = -x + 4$ through the point $(3, 2)$?

16. What is the slope of a line perpendicular to the line $2x - 4y = 5$?

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Model situations with linear functions

Use pencil and a straight edge to make a scatter plot and line of best fit.

17. Label the axes as x and y. Mark at least some values (for example, 5, 10, 15, and 20).

    (a) Plot the values of x and y shown in the table.

x	1	3	7	8	11	12	15	17	19
y	8	8	11	13	13	12	10	16	17

    (b) Draw a straight line of best fit that passes through the scatter plot of points, roughly representing their trend.

    (c) Approximately what is the slope of the line of best fit?

    (d) Approximately what is the y-intercept of the line of best fit?