Review for the first exam
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Disclaimer The following is a set of questions to help you review what we have covered in class. If you know how to answer these questions then you should do well in the exam. However there is no guarantee that the questions in the actual exam will be perceived to be similar to these questions.

1. Evaluate: $7 - 3(2 - 7) - 3^3 \div 9 \cdot 3$

2. Evaluate: $\dfrac{-25}{16} \cdot \dfrac{20}{-9} \cdot \left(-\dfrac{54}{11}\right) \cdot \dfrac{6}{-7} \cdot \dfrac{77}{50}$

3. Evaluate: $-4^2 + 4(-6 + 10)$

4. Evaluate, if $a = -\dfrac{3}{4}$, $b = \dfrac{7}{8}$ and $c = -\dfrac{1}{12}$: $-6a + 10b - 7c$

5. Evaluate if $x = -7$ and $y = -5$: $y^2 - x^2$.

6. Evaluate if $a = 3$, $b = -2$, $c = 7$, $d = 2$, and $x = -1$: $\dfrac{ax + b}{cx + d}$

7. Evaluate if $x = 3$: $x^3 - 4x^2 + x + 6$

8. Solve the equation:
$$-2(5x - 1) + 3 = 5(-2x + 2) + 8$$

9. Solve the equation:
$$\frac{2x - 10}{3} - \frac{x + 3}{2} = -3x + 11$$

10. Solve the equation:
$$3(5x - 4) - 7x = 8x - 12$$

11. Solve the equation:
$$4(2x - 1) + x + 7 = 3(6x - 5) - 2x + 11$$

12. Solve for a: $\dfrac{2ac}{x} - 2 = 7x - 5$

13. Solve the following inequality, give the answer using interval notation and graph the solution set.
$$3(x - 2) + 5 > 5x - 11$$

14. Solve the following inequality, give the answer using interval notation and graph the solution set.
$$7 - 2(3x - 3) \leq -2x - 5$$

15. The length of a rectangle is 3 inches less than 5 times its width. If the perimeter of the rectangle is 54 inches find its dimensions.

16. The sum of three consecutive integers is 33. Find the three integers.

17. The coordinates of a solution to the following equation:
$$7x + 2y = -20$$
are consecutive integers. What's the solution?

18. Graph the line with equation $-3x + 2y = 6$ in the following grid.
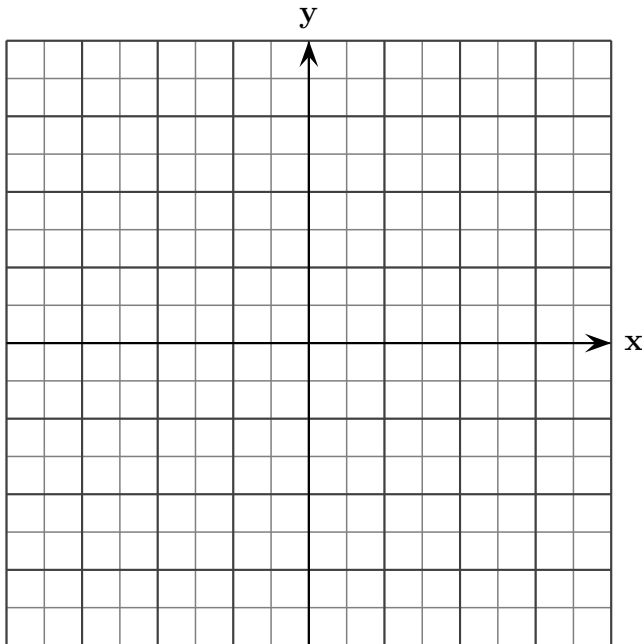
19. Find the slope and the $x-$ and $y-$intercepts of the line with equation $2x - 5y = 20$.

20. A line has slope -3 and passes through the point $(1, 7)$. Find its equation.

21. A line passes through the points with coordinates $(2, 3)$ and $(-1, 3)$. Find its equation.

22. A line passes through the points with coordinates $(-2, 13)$ and $(2, -7)$. Find an equation for this line.

23. A line passes through the points with coordinates $(-10, 3)$ and $(-10, -4)$. Find its equation.

24. A line is parallel to the line with equation $4x - 2y = 3$ and contains the point with coordinates $(-3, 4)$. Find the equation of this line.

25. A line passes through the point $(2, -11)$ and is parallel to the line with equation $x = -1$. Find its equation.

26. A line is perpendicular to the line with equation $3x - 5y = 7$ and contains the point $(-2, -7)$. Find its equation.

27. A line is parallel to the line with equation $5x + 3y = 11$ and passes through the point $(2, -3)$. Find its equation.

28. Do the lines with equations $y = 5x + 1$ and $y = 5x - 2$ intersect? Justify your answer.

29. Do the lines with equations $2x - 3y = 11$ and $3x + 5y - 12 = 0$ intersect? Justify your answer.

The following questions refer to figure 1.

30. Find the slope of the line L.

31. Find an equation for the line L.

32. Find the x and y intercepts of the line L.

33. What is the y-coordinate of the point P?

34. Find an equation for the line that passes through the point Q and is parallel to L.

35. Find the equation of the line N in slope-intercept form.

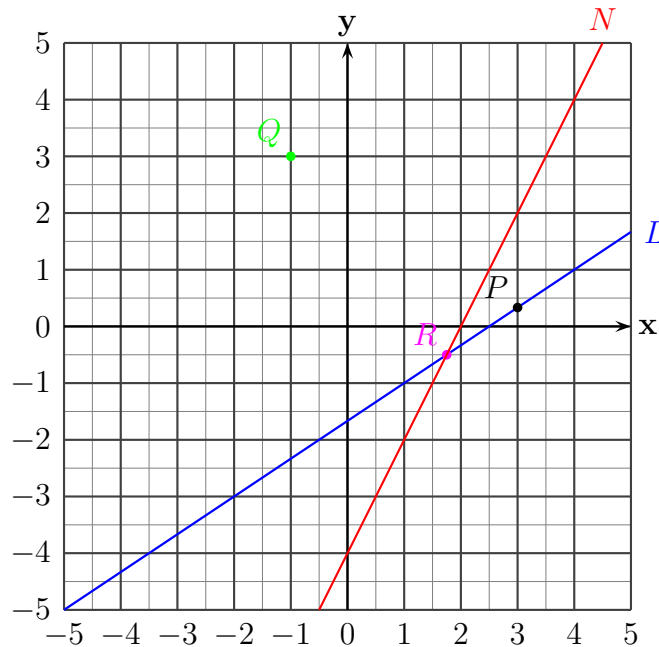36. What are the coordinates of the point R?

Figure 1: A bunch of lines and points

37. Solve for n: $\quad 5(8 - n) = 3n - 16$

   A. $n = 3$ B. $n = -3$ C. $n = 7$ D. $n = -7$

38. Solve for y: $6y - 5 = 3(2y - 1) - 2$

   A. $y = 0$ B. $y = -5$ C. All numbers are solutions.   D. There are no solutions.

39. Solve for z: $7(z - 2) = 6z - 14$

   A. $z = 0$ B. $z = -14$ C. All numbers are solutions.   D. There are no solutions.

40. If x represents a number, which equation is correct translation of the sentence?

   15 is 12 less than 2 times a number.

   A. $15 = 12 - 2x$ B. $15 = 2(x - 12)$ C. $15 = 2x - 12$ D. $15 = 2(12 - x)$

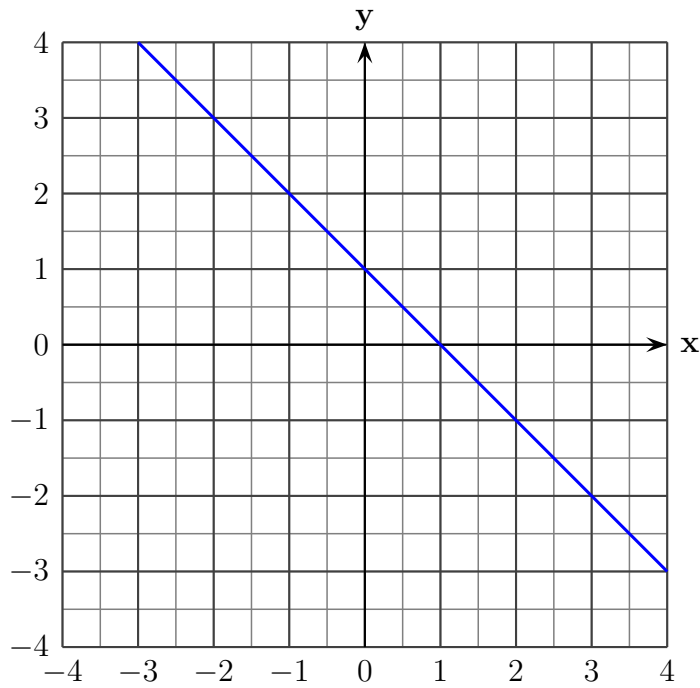41. Find the graph of the solution to the inequality $2x - 3 \geq 5x + 6$
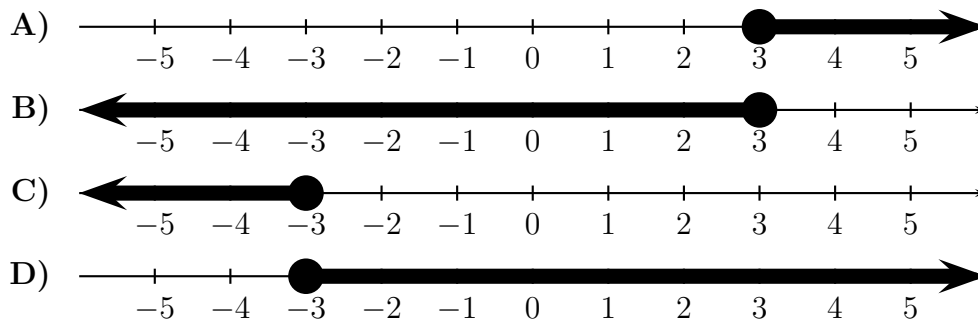
42. Find the equation of the vertical line passing through the point $(-5, -2)$.

   A. $y = x - 2$ B. $y = -2$ C. $x = -5$ D. $y = \dfrac{2}{5}x - 2$

43. Find the equation of the horizontal line passing through the point $(-5, 3)$.

   A. $y = 3$ B. $x = -5$ C. $y = \dfrac{3}{5}x$ D. $y = x + 3$

44. Find the slope and the y intercept of the graph of the equation $quad 3x + 4y = 8$

   A. slope$= -\dfrac{3}{4}$ and y-intercept $(0, 2)$

   B. slope$= \dfrac{4}{3}$ and y-intercept $(0, 8)$

   C. slope$= \dfrac{3}{4}$ and y-intercept $(0, 2)$

   D. slope$= -\dfrac{3}{3}$ and y-intercept $(0, 8)$

45. Solve for x: $z = 5x + y$

    A. $x = \dfrac{z+y}{5}$ B. $x = \dfrac{z-y}{5}$ C. $x = \dfrac{z}{5} - y$ D. $x = 5(z - y)$

46. Choose the correct equation for the line whose graph is shown below:

A. $x - y = 1$

B. $x + y = 1$

C. $x + y = -1$

D. $x - y = -1$