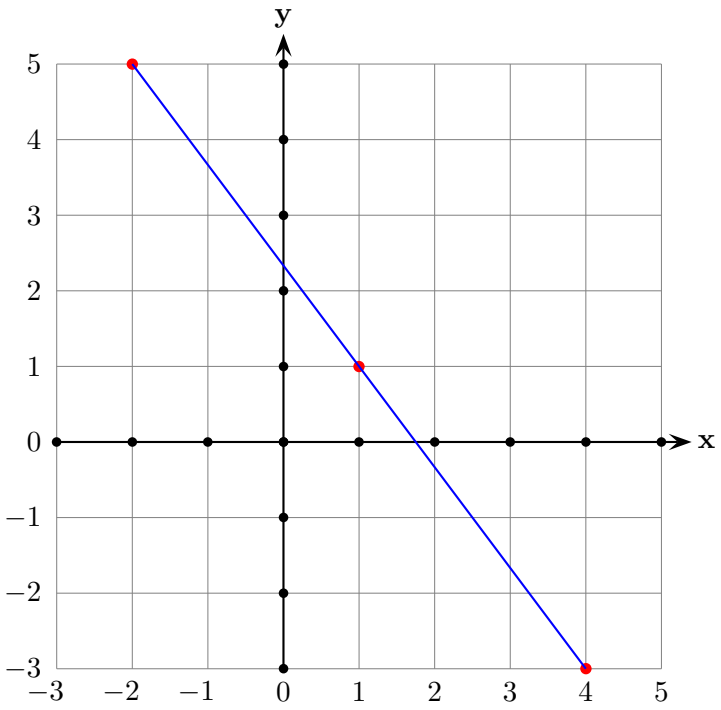
Practice for the second midterm.

The answers

1. Evaluate: $-4-3(6-9)+3^2$ 14
2. Simplify $\sqrt{75}$ $5\sqrt{3}$
3. Simplify: $(2x^5y^6)^2(x^2y)^5$. $4x^{20}y^{17}$.
4. Evaluate: $\dfrac{x^2-3x}{3x+1}$ when $x=-2$. -2
5. Expand and simplify: $(2x-3)(5x^2+4x-5)$. $10x^3-7x^2-22x+15$.
6. Solve: $5(2x-3)=-3(x-8)$. $x=3$.
7. Solve: $\dfrac{2x-1}{3}=\dfrac{x+1}{6}$. $x=1$.
8. Solve the system: $\begin{cases} x-3y &= 7 \\ 5x+2y &= 1 \end{cases}$ $x=1,\quad y=-2$
9. Solve the system: $\begin{cases} 2x-3y &= 12 \\ 3x+6y &= -3 \end{cases}$ $x=3,\quad y=-2$
10. Solve the system: $\begin{cases} 5x-2y &= -13 \\ 4x+3y &= 8 \end{cases}$ $x=-1,\quad y=4$
11. Find the slope of the line that contains the points $(1,2)$ and $(3,10)$. 4
12. Find the slope of the line with equation $y=-3x+2$. -3
13. Find the slope of the following line: $-\dfrac{4}{3}$



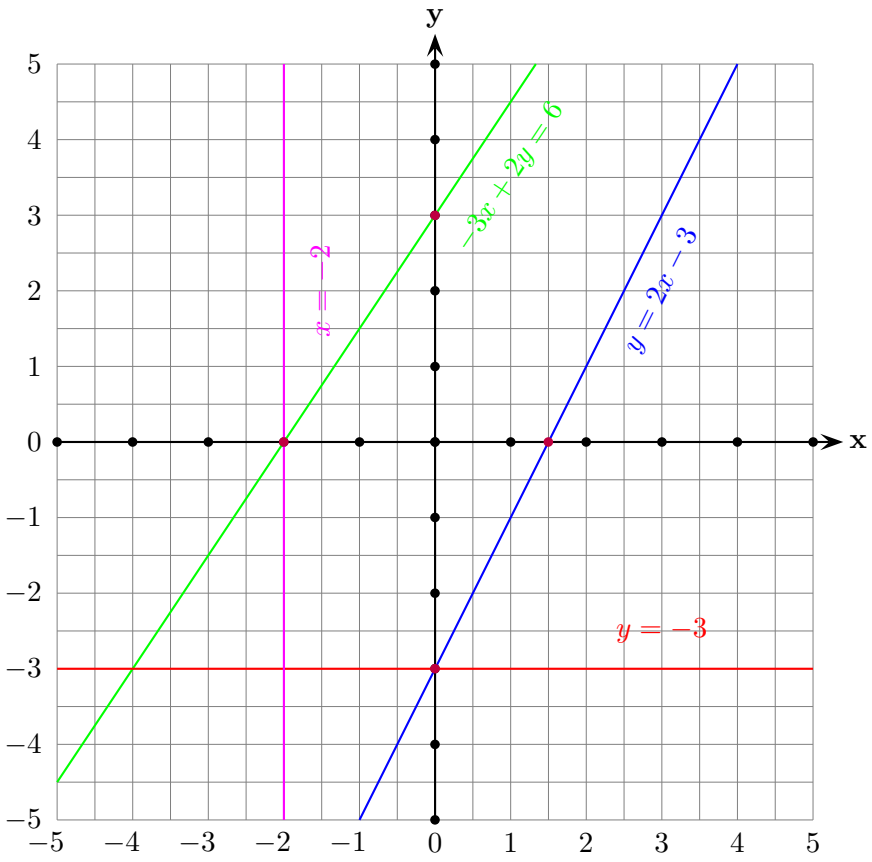
14. For each of the following lines find the slope, the x and y intersepts and graph them on the following grid. Make sure to mark clearly which line corresponds to which equation.

(a) $y = 2x - 3$ Slope is 2, y–intercept -3, x–intercept $\frac{3}{2}$

(b) $-3x + 2y = 6$ Slope is $\frac{3}{2}$, y–intercept 3, x–intercept -2

(c) $y = -2$ Slope is 0, y–intercept -2, x–intercept does not exist.

(d) $x = -3$ Slope is undefined, y–intercept does not exist, x–intercept -3



15. Factor completely: $x^2 - x - 6$. $(x + 2)(x - 3)$.

16. Factor completely: $x^2 + 8x + 15$ $(x + 3)(x + 5)$

17. Factor completely: $7x^2 - 63$. $7(x + 3)(x - 3)$.

18. Factor completely: $x^3 - x$. $x(x + 1)(x - 1)$.

19. Factor completely: $x^4 - 81$ $(x - 3)(x + 3)(x^2 + 9)$

20. Factor completely: $2x^2y^2 + 6xy^2 - 56y^2$ $2y^2(x + 7)(x - 4)$