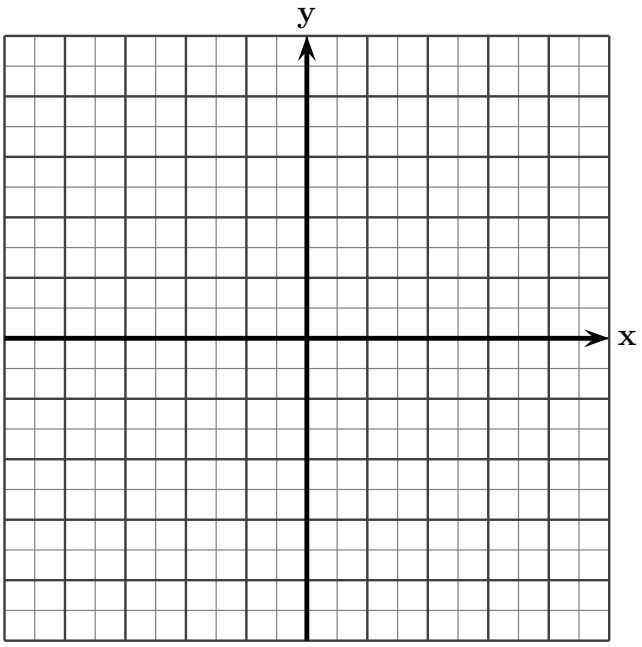
Practice questions for the second exam

1. Evaluate: $-9 - 5(5 - 7)$.
2. Evaluate: $\sqrt{x^2 + y^2}$ if $x = 12$ and $y = -13$
3. Solve: $-4(2x + 3) = 6(x - 5)$
4. Solve for x: $4x + 3y = 20$
5. Translate into algebra and solve:

$$7 \textbf{ less than } 4 \textbf{ times a number is } 41.$$

6. Find the point of intersection of the lines with equations $y = 2x - 5$ and $3x - 5y = 4$.
7. Solve the system: $\begin{cases} 5x - y = -7 \\ 3x + 2y = -12 \end{cases}$
8. Solve the system: $\begin{cases} 2x - 3y = -10 \\ 3x + 2y = -2 \end{cases}$
9. Sketch a graph of $3x - 2y = -6$. Show the x and y intercepts.



10. Simplify. Write your answer using positive exponents only: $(2x^{-3}y^2)^{-4} \cdot (4x^5y^{-3})^2$.
11. Simplify. Write your answer using positive exponents only:

$$\frac{(2x^5y^2z^{-6})^{-3}}{(4x^4y^3z^{-3})^{-2}}$$

12. Perform the operations and give your answer in Scientific Notation:
    (a) $(3.1 \times 10^{-5}) \cdot (5.0 \times 10^{7})$
    (b) $\dfrac{(5.1 \times 10^{6})\,(4.3 \times 10^{-3})}{2 \times 10^{7}}$
13. Subtract: $(x^3 - 8x^2 - 5x + 6) - (2x^3 - 5x^2 - 3x + 2)$
14. Multiply: $(3x + 2)(5x - 1)$
15. Multiply: $(3x - 2)(5x^2 - x - 2)$
16. Expand: $(2x - 5)^2$
17. Expand: $(x - 3)^3$
18. Multiply: $(2x + 3)(2x - 3)$
19. Divide: $\dfrac{6x^5 - 10x^4 + 8x^3 - 4x^2}{2x^2}$
20. Simplify: $(b + a)^2 + 2\ (a - b)\ (b + a) + (a - b)^2$
21. Simplify: $\dfrac{(x + 3)(x - 2) + 6}{x}$
22. Simplify: $\dfrac{(x - y)^2 - (x + y)^2}{4xy}$
23. The width of a rectangle is one more than three times its length. The area of the rectangle is 80 square inches. Find the dimensions of the rectangle.
24. Find the slope and the y–intercept of the line passing through the points $(-4, 13)$ and $(-10, 25)$.
25. Find a if the following is an identity: $(x + a)(x - 3) = x^2 + 2x - 15$.