Advanced Algebra 2   Final Review #2
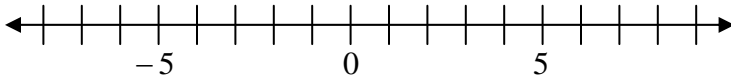
Show all work:

1. What is the solution for $|5x - 3| > 2$

5. The plumber charges $65 per hour of work plus $50 to make the service call. Write the equation used to find the plumber's wage. Then calculate the wage for 4.5 hours of work.

2. Identify the solution for

$$\frac{2}{5}(3 - x) \le 0 \text{ or } 5 - 3x > -7$$

Then graph on number line

6. What function is graphed here?

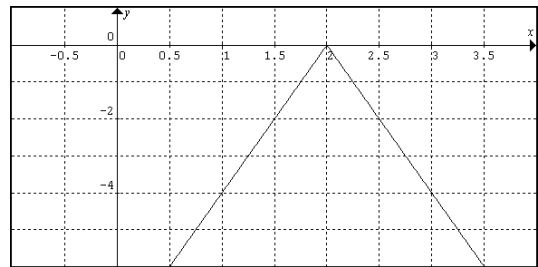

3. What values of x make

$$\frac{5x^2 - 25x}{5x} = x - 5 \text{ true?}$$

7. Simplify: $\left(\dfrac{4x^{-4}y^2}{5x^6 y^{-3}}\right)^{-3}$

4. What is the value of x+y ?

$$\begin{cases} 3x - 10y = -25 \\ 4x + 40y = 20 \end{cases}$$

8. If $f(x) = 3x^2 - 2x$ and $g(x) = x + 3$ then find $(f \circ g)(x)$

9. Let $f(x) = \dfrac{3x + 14}{9}$. What is the inverse of $f(x)$?

10. Find the sum of the x and y coordinates that are the solution to the system
$$3x + 4z = -1$$
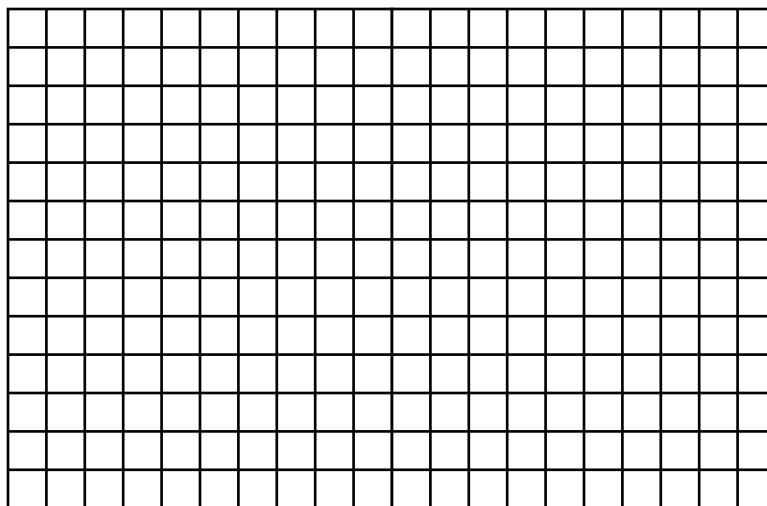$$-3x + 2y - z = -6$$
$$x + 4y + 2z = -9$$

11. What polynomial represents
$(2x + 3)(3x^2 - 7x - 6)$?

12. Graph the constraints above and find the maximum and minimum for the given objective function.
$$x + y \le 8$$
$$0 \le x \le 4$$
$$0 \le y \le 6$$
$$P = 36x + 40y$$

13. What polynomial represents
$(5 - 18x + x^2) - 4(3 + 2x - 5x^2)$

14. What is the remainder?
$$x + 2 \overline{)2x^4 + 15x^3 - 12x^2 - 30x - 14}$$

15. Graph the system of inequalities:
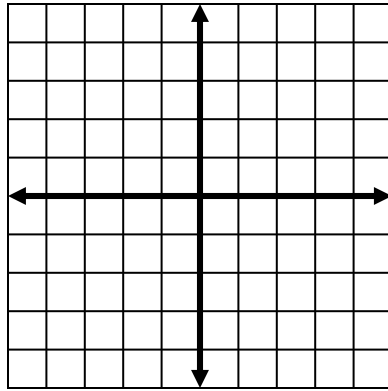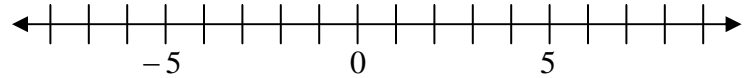
$x - 3y \geq 4$

$3x + y > 4$

20. Graph the solution on a number line

$x^2 - 7x + 12 \geq 0$

16. Find the quadratic whose roots are -3 and 4.

17. Factor completely $5x^2 + 50x + 125$

18. What number completes the square for the quadratic expression $x^2 + 9x$?

19. Graph $-5 + 2i$ on a two dimensional plane.