Unit 11: Algebra II introduction Name:
19 April 2020

11.1 Classwork: Literals, equations with multiple unknowns
Do not use a calculator or convert values to decimals

Reference: Chili Math, Solving Literal Equations
https://www.chilimath.com/lessons/intermediate-algebra/literal-equations/

Simplify each expression by "collecting like terms"

1. (a) $2x + 4 - x + 11$

   (b) $5y - 4 - 7y + y$

   (c) $14 + 5\pi - 2\pi + 4$

   (d) $2a + \sqrt{5} + 7a + 3\sqrt{5}$

   (e) $x\sqrt{3} - x\sqrt{3} + x + 1$

   (f) $3\pi x + 4 + 2\pi x - 7$

Solve each equation for the unknown

One step.

2. (a) $2x = 12$

   (b) $4z = -8$

   (c) $3a = \pi$

   (d) $2y = \sqrt{5}$

Two steps.

3. (a) $7x + 4 = 11$

   (b) $-4b + 5 = -3$

   (c) $4m - \sqrt{2} = 3\sqrt{2}$

   (d) $2y - 3\pi = \pi$

4. $10 = x - 3x$

5. $\frac{1}{2}(6 - 2x) = 4x$

6. $11 = \frac{1}{3}x + 2x - 10$

Working with polynomials

Simplify each expression by "collecting like terms"

7. (a) $4x^2 + 3x - 7 - 2x^2 - x + 4$ (b) $3(a^2 - 2a + 1) - 2(a^2 - a - 4)$

Slope-intercept form

What is the slope and y-intercept of each equation?

8. $y = 2x - 3$

9. $4x + 2y = 6$

Function substitution

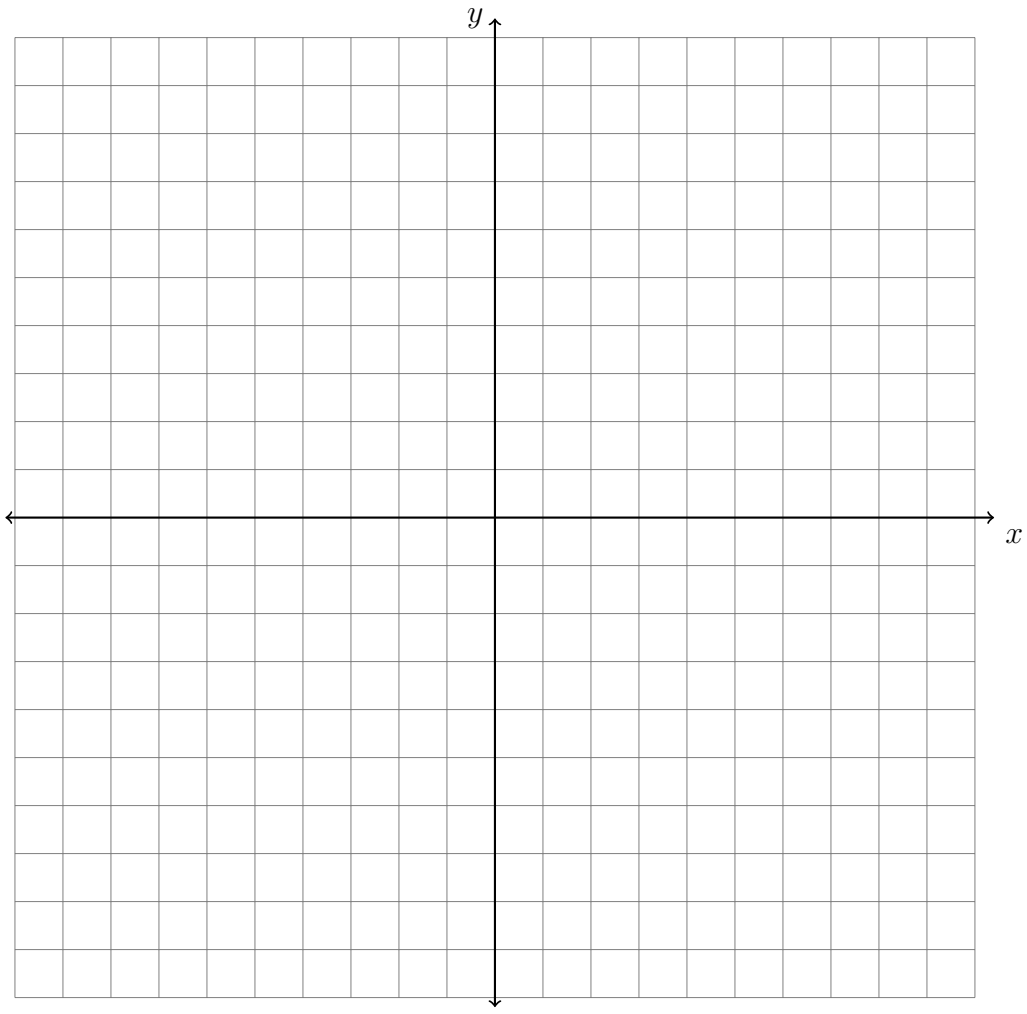
10. Given $f(x) = 4x + 7$. Simplify $f(2)$.

11. Given $f(x) = -\dfrac{(12 + 4x)}{11}$. Simplify $f(-3)$.

12. Solve the system of equations by graphing each line and marking the intersection as an ordered pair.

$$x + y = 7$$

$$y = 3x + 3$$



Solve each system algebraically.

13. $2x - 4y = 14$
$5x + 4y = 7$

14. $2x - y = -7$
$3x + 4y = 17$

15. Oceanside Bike Rental Shop charges a 17 dollar bike fee plus 6 dollars an hour for renting a bike. Jeffrey paid 53 dollars total. How many hours did he pay to have the bike checked out?

16. Three friends go bowling. The cost per person per game is $5.30. The cost to rent shoes is $2.50 per person. Their total cost is $55.20. How many games did they play?

17. The admission fee at a small fair is $1.50 for children and $4.00 for adults. On a certain day, 40 people enter the fair and $85.00 is collected. How many children and how many adults attended?

Parallel and perpendicular linear equations

18. What is the equation of the line with a slope of 2 passing through the point $(0, 1)$?

19. What is the equation of a line parallel to $y = -2x + 1$ with a y-intercept of 4?

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