ALGEBRA II
NINE WEEKS REVIEW

Name _____

1. Solve: $|2x+6| \leq 4$

2. Solve and graph the solution set: $4x-10<-10$ *or* $6x+4 \geq 10$

3. Solve and graph the solution set: $11 \leq 3x+2 \leq 20$

4. Solve: $|3x+7| \geq 26$

5. Simplify: $3+21 \div 7-8 \div 4$

6. Solve $2|2y-6|=4$

7. Evaluate $\frac{a}{b^2}+c$ *if* $a=-9, b=\frac{2}{3}, c=8$

8. To what sets of numbers does 10 belong?

9. Graph $y=|x+4|$

10. Graph $x-2y<1$

11. If $f(x)=x^3-3x^2+2x+5$, *find* $f(2)$.

12. Find the slope of the line that passes through $(2,-3)$ *and* $(-1, 6)$.

13. State the domain of the following relation and then tell if it is a function.
$\{(3, 2), (2, 2), (-1, 5), (0, 0)\}$

14. Write the equation of a line (in slope-intercept form) that has a slope of 2 and passes through (3, 4).

15. Write the equation of a line (in slope-intercept form) that is perpendicular to $y = \frac{2}{3}x + 4$ and passes through $(-2, 1)$.

16. Graph $f(x) = |x| - 2$.

17. Graph: $g(x) = \begin{cases} x & if \quad x < 0 \\ 2 & if \quad x = 0 \\ x - 1 & if \quad x > 0 \end{cases}$

18. The weight in pounds of a person (w) is directly related to the person's height (h) by the equation $w = 5.25h - 200.5$. Predict the height of a person that weighs 155 pounds.

Solve each system of equations using any method:

19. $\begin{aligned} 5x + 3y &= -4 \\ 7x - y &= 36 \end{aligned}$

20. $\begin{aligned} 7x + y &= 9 \\ 5x - y &= 15 \end{aligned}$

21. $\begin{aligned} 5x - 3y &= 19 \\ 7x + 2y &= 8 \end{aligned}$

22. $\begin{aligned} 8x + 3y &= 5 \\ 6x - 2y &= -9 \end{aligned}$

23. Solve the system of inequalities by graphing.

$$y \geq -\frac{1}{2}x + 1$$
$$3x + y < 5$$
$$2x - y > -2$$

Solve each system of equations.

24. $y + 2z = 5$
$7x - 3y + z = 20$
$2z = 8$

25. $x + 2y - z = 1$
$x + 3y + 2z = 7$
$2x + 6y + z = 8$

26. Graph the system of inequalities. Find the maximum and minimum values of the given function.
$x \geq 0$
$y \geq 0$
$x \leq 5$
$y \leq 6$
$x + y \leq 6$
$f(x, y) = 2x - y$

27. Find the constant of variation for the direct variation, y = 3 when x = -2. Then find the value of y when x = 3.

28. Determine whether y varies directly with x. If so, find the constant of variation.
y – 3x = 1

29. y varies directly with x. If y = 3 when x = 2, find x when y = 5.

30. In a class of 19 students, 10 study Spanish, 7 study French, and 2 study both French and Spanish. One student is picked at random. Find each probability:

a. P(studying Spanish but not French)
b. P(studying French)
c. P(studying neither Spanish nor French)
d. P (studying both Spanish and French)

31. A basketball player has attempted 24 shots and made 13. Find the experimental probability that the player will make the next shot that she attempts.

32. Find the theoretical probability of getting a number that is less than 3 when you roll a number cube (die).

33. Solve for b_2 in the following formula: $A = \frac{1}{2} h (b_1 + b_2)$

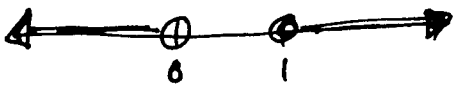
34. Solve the equation for x: $\frac{3}{4}(x + 1) = g$

35. Denim Duds makes denim jackets and jeans. Each garment must be cut from a pattern and sewn. There are 40 worker hours per day available for cutting and 52 hours per day for sewing. The jacket requires 1 hour of cutting and 4 hours of sewing. The jean jeans require 2 hours of cutting and 2 hours of sewing. If the profit of the jacket is $14.00 and the profit of the jeans is $8.00, how many of each should be made to maximize the profit

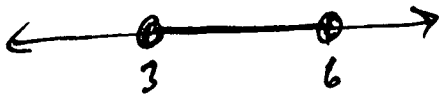
9-WEEKS REVIEW
(Algebra II)

1. $-5 \leq x \leq -1$

2. $x < 0$ or $x \geq 1$



3. $3 \leq x \leq 6$



4. $x \geq \frac{19}{3}$ or $x \leq -11$

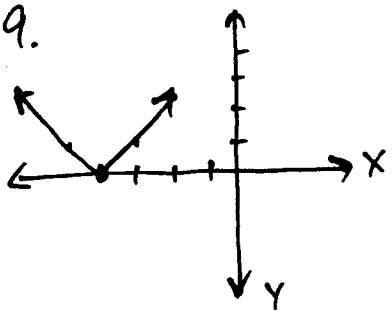
5. 4

6. $y = 4, 2$

7. $\frac{-49}{4}$

8. Whole, Integer, Rational, Real

9.



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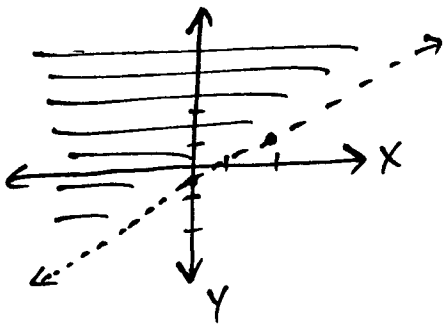


11. $f(2) = 5$

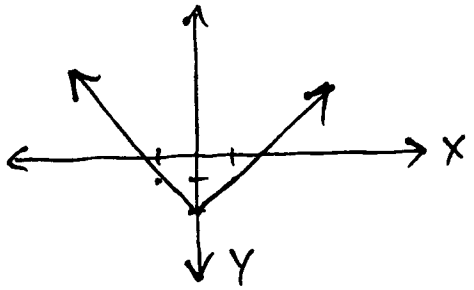
12. $m = -3$

13. $D = \{3, 2, -1, 0\}$, yes

14. $y = 2x - 2$

15. $y = -3/2x - 2$

16.



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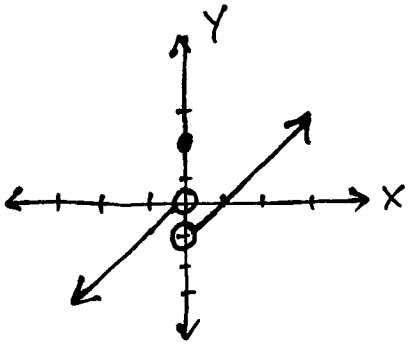


18. $h = 67.7$

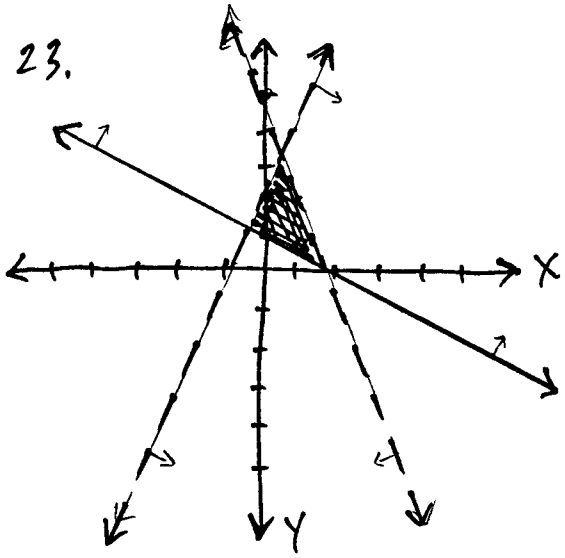
19. $(4, -8)$

20. $(2, -5)$

21. $(2, -3)$

22. $(-1/2, 3)$

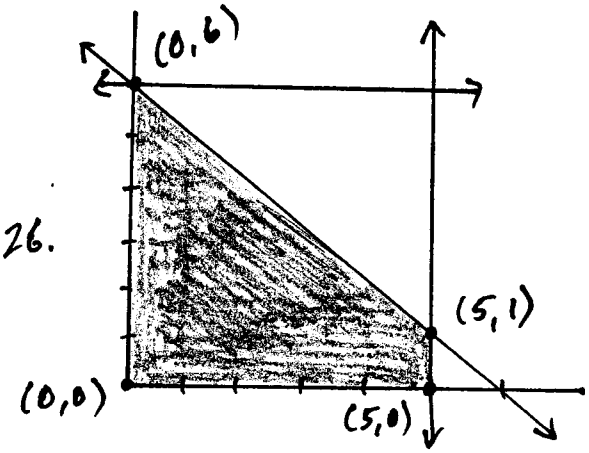
23.



24. $(1, -3, 4)$

25. $(3, 0, 2)$

26.



$f(0,0) = 0 - 0 = 0$

$f(5,0) = 10 - 0 = 10$ Max

$f(5,1) = 10 - 1 = 9$

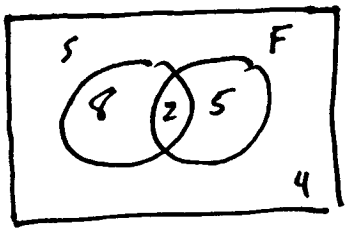
$f(0,6) = 0 - 6 = -6$ Min

27. $K = \frac{-3}{2}$, $y = -4.5$

28. y does not vary directly with x

29. $x = \frac{10}{3}$

30.



a. $\frac{8}{19}$ b. $\frac{5}{19}$

c. $\frac{4}{19}$ d. $\frac{2}{19}$

31. $\frac{13}{24} = 54\%$

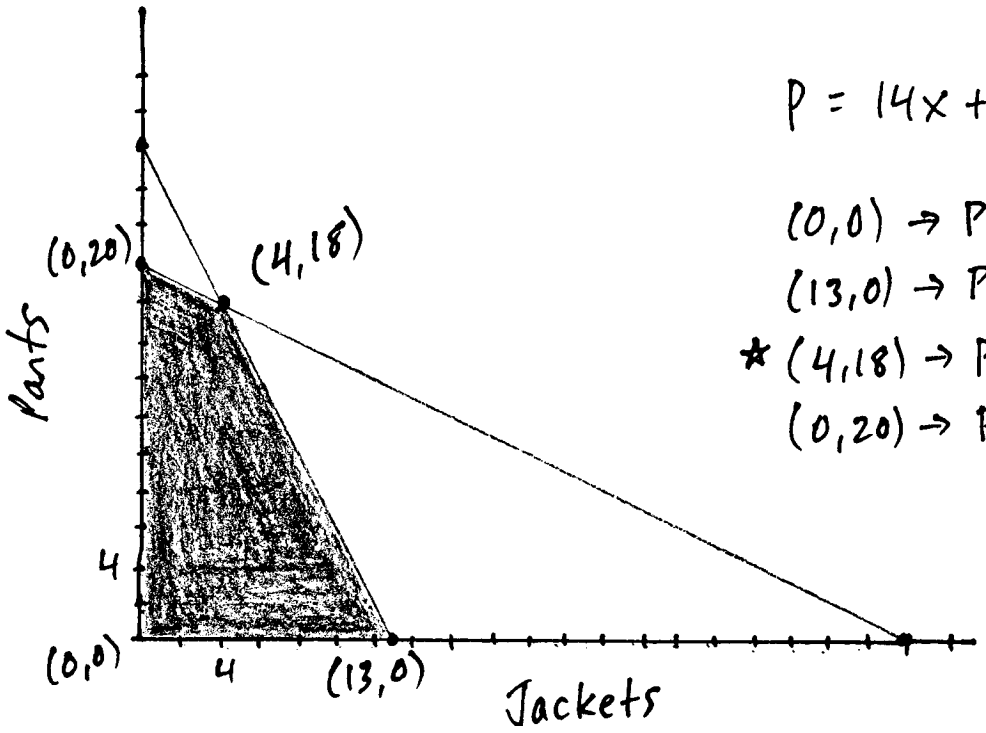
32. $P(1 \text{ or } 2) = \frac{2}{6} = \frac{1}{3}$

33. $b_2 = \frac{2A}{h} - b_1$

34. $x = \frac{4}{3}y - 1$

35. x = #jackets y = #pants

$x + 2y \leq 40$ $4x + 2y \leq 52$ $x \geq 0$ $y \geq 0$



$P = 14x + 8y$

$(0,0) \rightarrow P = 0$

$(13,0) \rightarrow P = 182$

★ $(4,18) \rightarrow P = 200$

$(0,20) \rightarrow P = 160$

★ 4 jackets and 18 pants should be made to get a maximum profit of $200