

Math 71A – Final Exam Review Exercises Answer Key

Note: Please let me know if you find any mistakes or have any questions! - Prof. Beydler

1.

a. $\left\{-\frac{11}{2}, \frac{23}{2}\right\}$

b. \emptyset

c. $\left\{\frac{3}{8}, -\frac{1}{2}\right\}$

d. $\left\{-\frac{2}{3}, 0, \frac{3}{2}\right\}$

e. $\{-4, -1\}$

f. $\{-4\}$

g. $\{3\}$

h. $\{-3, 2\}$

2. $b = \frac{d}{a+c}$

3. $t = \frac{p}{c-p}$

4. $(-\infty, -8) \cup (-8, 7) \cup (7, \infty)$

5. $(-\infty, 4) \cup (4, 9) \cup (9, \infty)$

6.

a. 3

b. 1

c. Undefined

d. $\frac{1}{2}$

e. $[-1, 3]$

f. $[-2, 2]$

g. $[-1, 2]$

7. $16x^2 + 4x - 2$

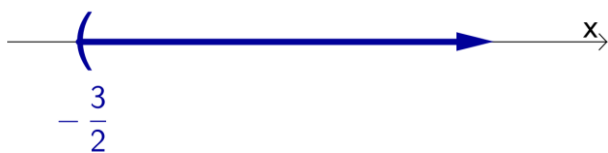
8. $6ah + 3h^2 + 2h$

9. $\left(\frac{g}{f}\right)(0) = -3$ and $(fg)(1) = 1$

10. $\left(\frac{f}{g}\right)(1) = -\frac{27}{7}$ and $(g-f)(2) = \frac{97}{10}$

11.

a. $\left(-\frac{3}{2}, \infty\right)$



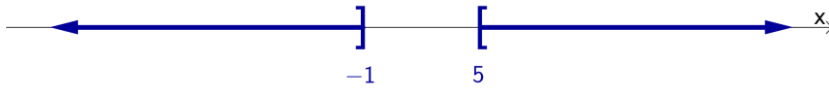
b. $\left[-2, \frac{5}{2}\right)$



c. $(-\infty, \infty)$



d. $(-\infty, -1] \cup [5, \infty)$



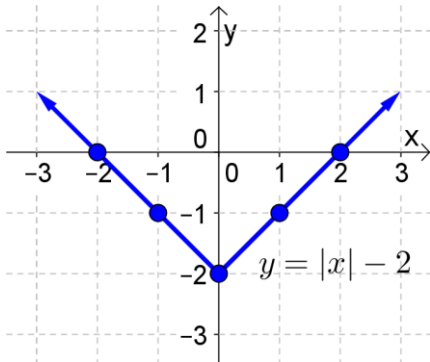
e. \emptyset (no graph)

12. $\{(2, -1, 4)\}$

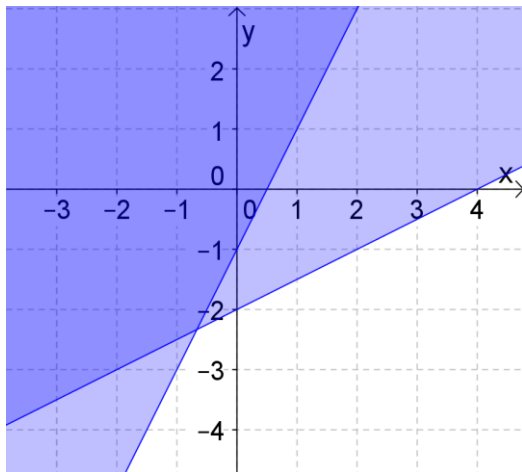
13. $y = \frac{2}{3}x + \frac{10}{3}$

14. $y = \frac{2}{3}x + \frac{7}{3}$

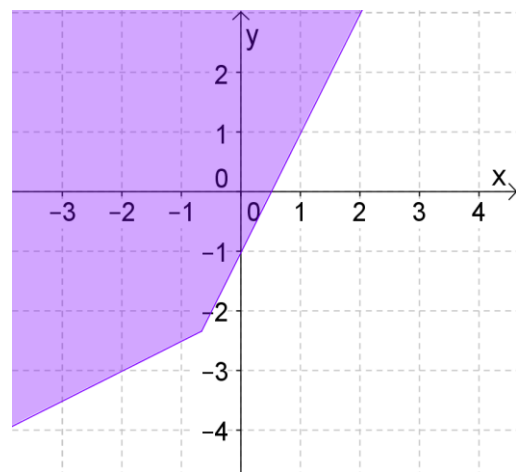
15.



16.

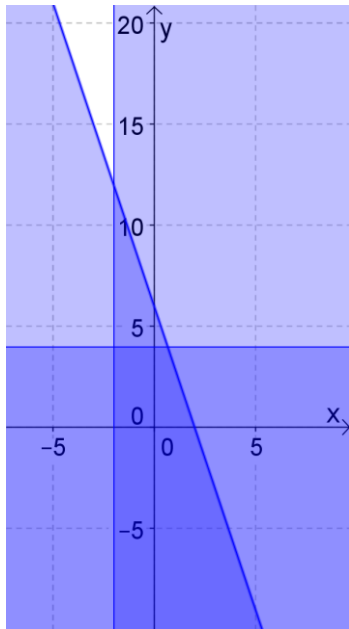


(scratch)

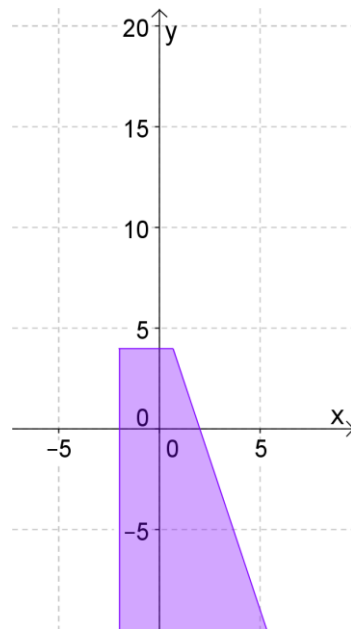


(final version)

17.



(scratch)



(final version)

18.

- a. $-5x^2(x + 2)(x^2 - 2x + 4)$
- b. $2xy^3z(4x^2y - 3xy^2z^2 + z)$
- c. $2x^4(2x - 3)(4x + 1)$
- d. $3x^2(5x - 3)(x - 2)$
- e. Prime
- f. $(9x^2 + 4y^2)(3x + 2y)(3x - 2y)$
- g. $(2a - b)(x + 3y)$
- h. $-(x - 2)^2(x + 2)$
- i. Prime
- j. $-2(y - 3)(y^2 + 3y + 9)$

19.

- a. $-6x^4y^3 - 3x^2y^3 - 4x^2y + xy$
- b. $22x^5 + 9x^4 + 7x^3 - 15x^2 + 3x - 5$
- c. $x^4 - x^3 + 2x^2 + x + 3$
- d. $-\frac{2}{x-2}$
- e. $\frac{-9y^2+14y-12}{(y-2)(y-1)(3y+4)}$
- f. $\frac{x-1}{4(x+1)}$
- g. $-\frac{2(x+y)}{5y^3}$

20. $\frac{5y}{5y-12}$

21. $-\frac{(x+3)(x+4)(3x+10)}{x(x+2)}$

22.

a. $x^2 - 3x + 5 - \frac{10}{x+1}$

b. $5x^2 - 2x + 16 + \frac{x+36}{x^2-3}$

23. 6

24. The length is 12 feet and the width is 4 feet.

25. There should be 30 ounces of 10% solution and 20 ounces of 60% solution.

26. They need 12 lbs of peanuts and 8 lbs of dried banana slices.

27. It would take your friend 6 hours to do the job alone.

28. It would take your friend 135 minutes to vacuum the house.