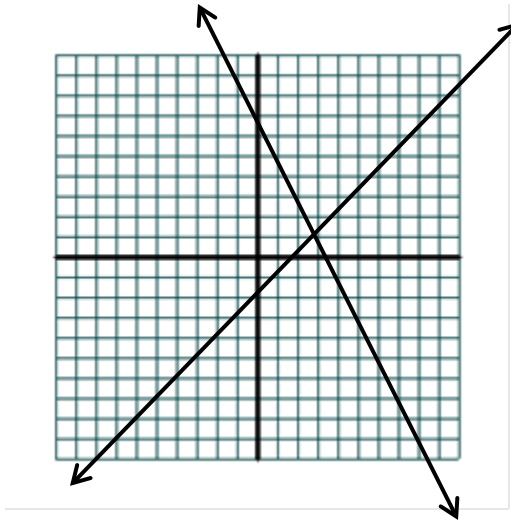


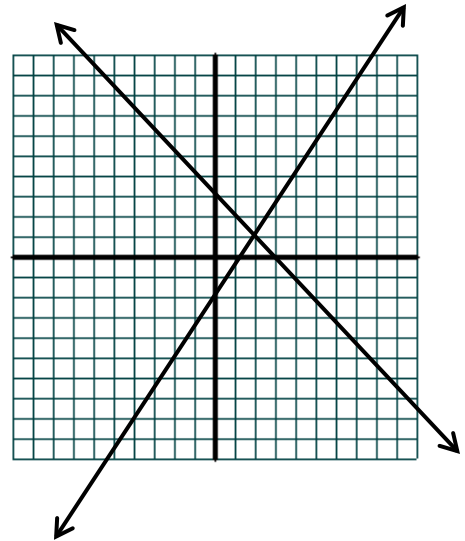
CHAPTER 3 ANSWERS

PROBLEM SET 3-1

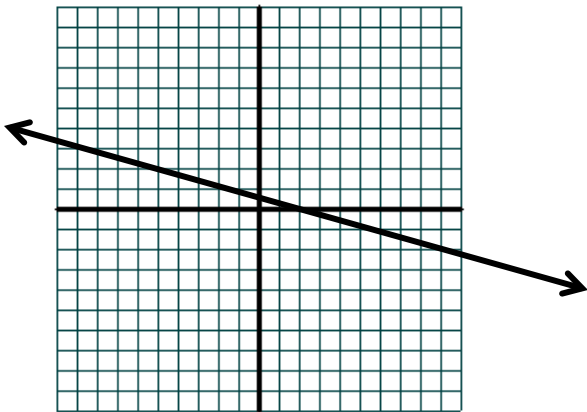
1. $(3, 1)$



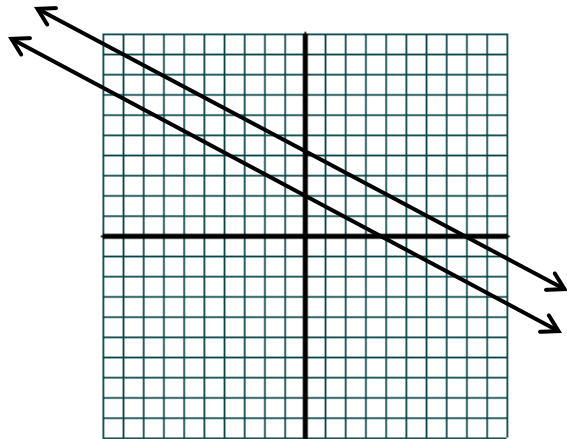
2. $(2, 1)$



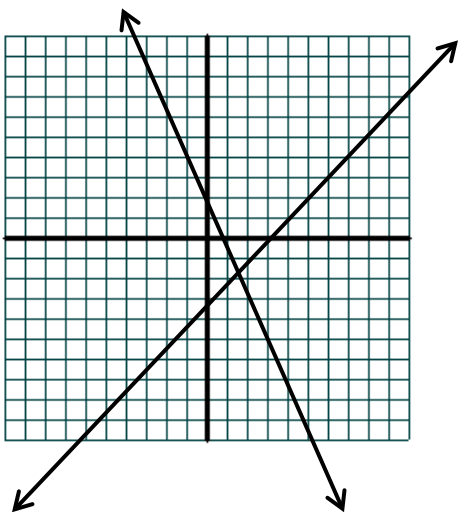
3. All real numbers



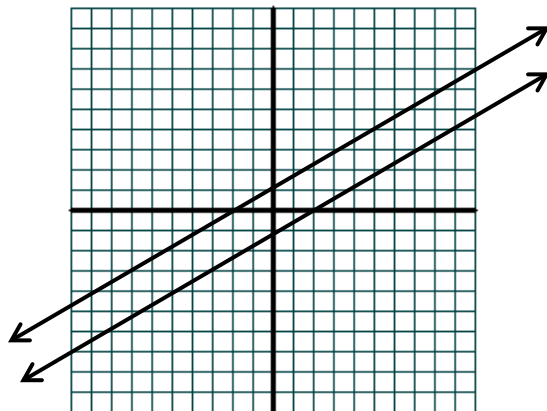
4. No Solution



5. $\left(\frac{16}{9}, -\frac{14}{9}\right)$



6. No Solution



7. Inconsistent

8. Dependent

9. Independent

10. Inconsistent

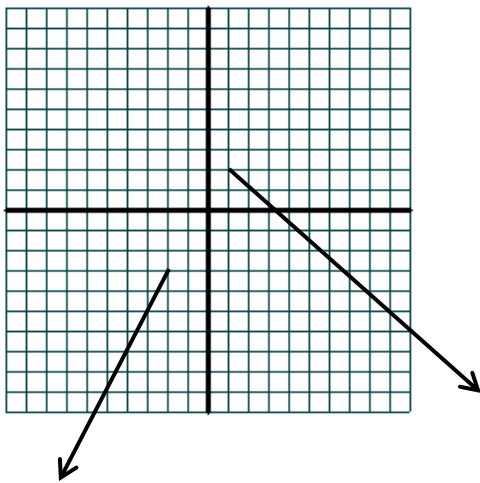
PROBLEM SET 3-2

- | | | | | |
|------|------|------|------|-------|
| 1. T | 2. F | 3. F | 4. F | 5. T |
| 6. T | 7. F | 8. T | 9. F | 10. F |

- | | | | |
|----------------|-----------------|------------------------|------------------------|
| 11. $(-2, 6)$ | 12. $(-6, -7)$ | 13. No Solution | 14. $(-1, -1)$ |
| 15. $(3, 5)$ | 16. $(4.4, -6)$ | 17. Infinite Solutions | 18. $(-3, -5)$ |
| 19. $(-1, -1)$ | 20. $(4, 5)$ | 21. No Solution | 22. $(5, \frac{7}{4})$ |

PROBLEM SET 3-3

1.

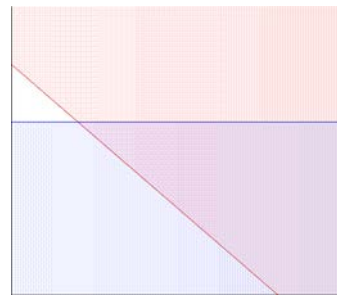


2.

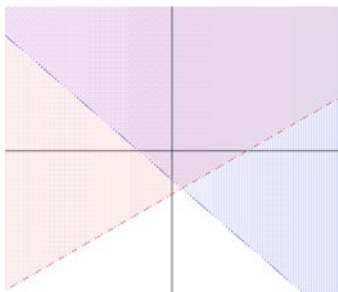
$x = \# \text{ of adults}$

$y = \# \text{ of children}$

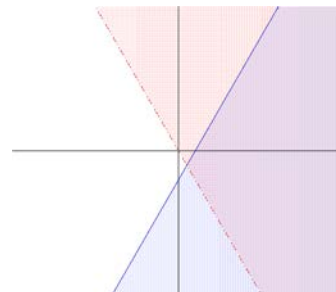
$x > 0, y > 0, x + y \geq 40, y \leq 30$



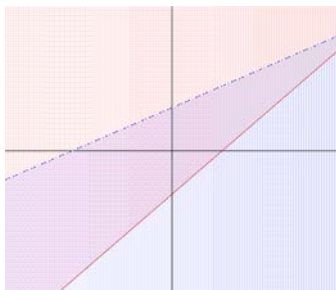
3.



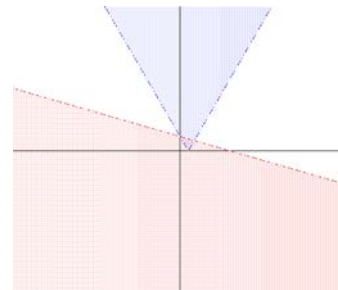
4.



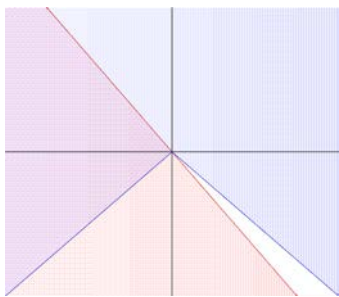
5.



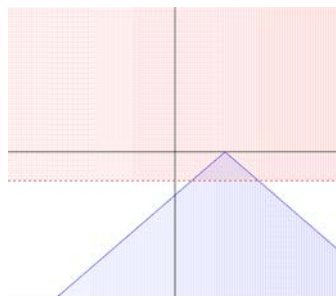
6.



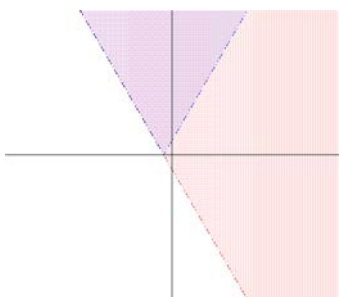
7.



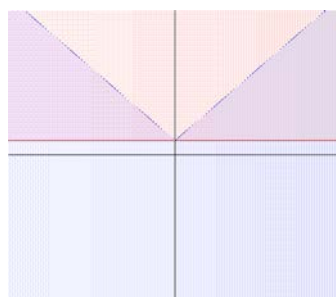
8.



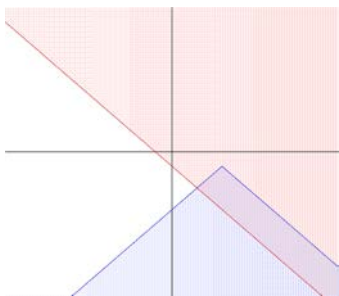
9.



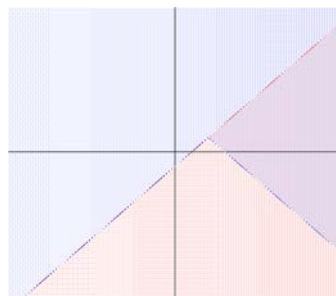
10.



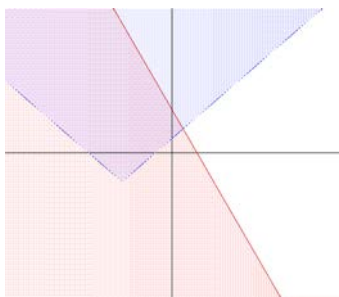
11.



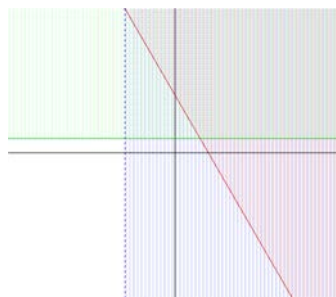
12.



13.



14.

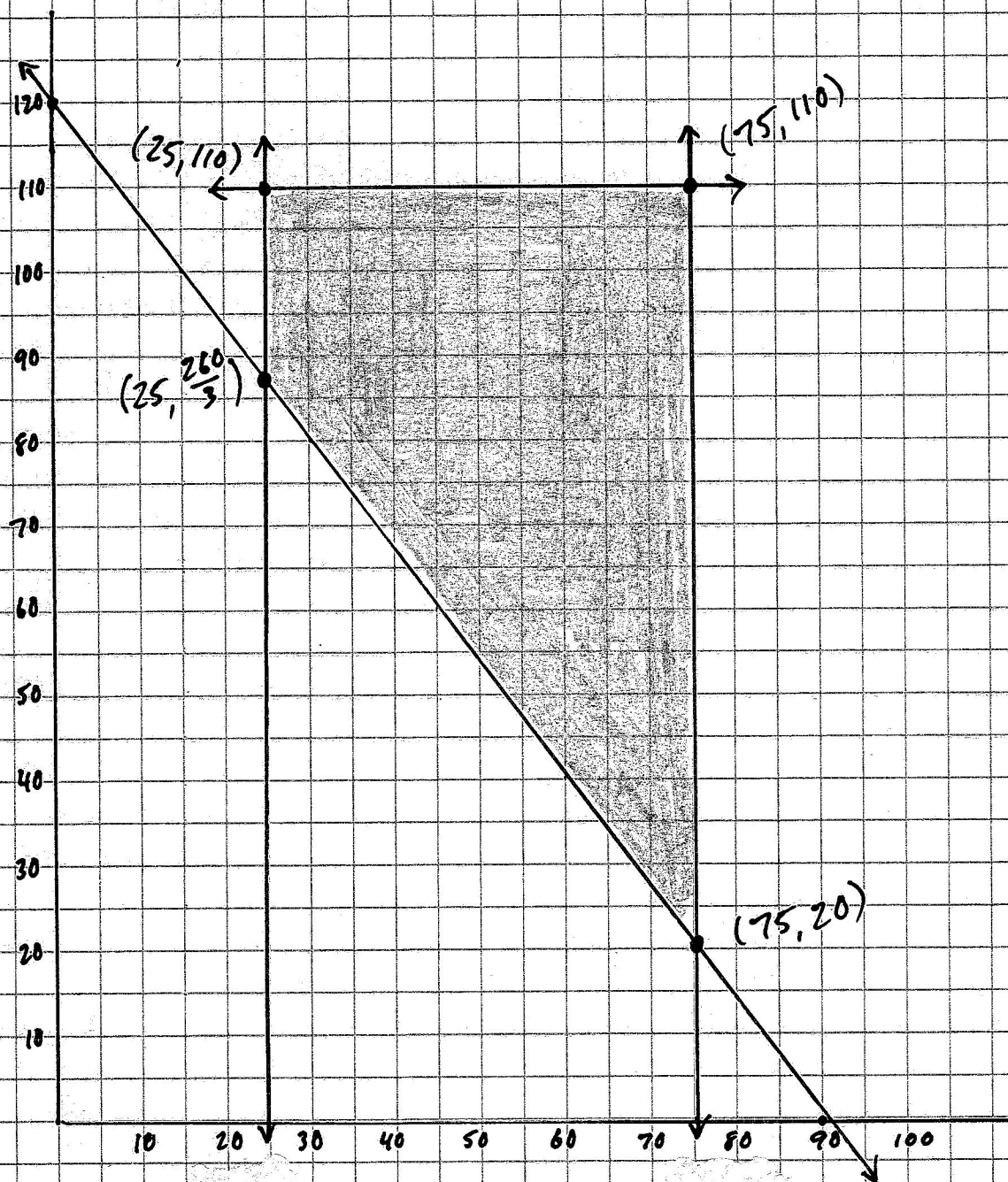


PROBLEM SET 3-4

1) $25 \leq x \leq 75$

$8x + 6y \geq 720$

$y \leq 110$



$C = 8x + 5y$ $(25, 110) \rightarrow C = 750$

$(75, 110) \rightarrow C = 1150$

$(75, 20) \rightarrow C = 700$

* $(25, \frac{260}{3}) \rightarrow C = 633\frac{1}{3}$

2) $X = \# \text{ Type I Samples}$

$Y = \# \text{ Type II Samples}$

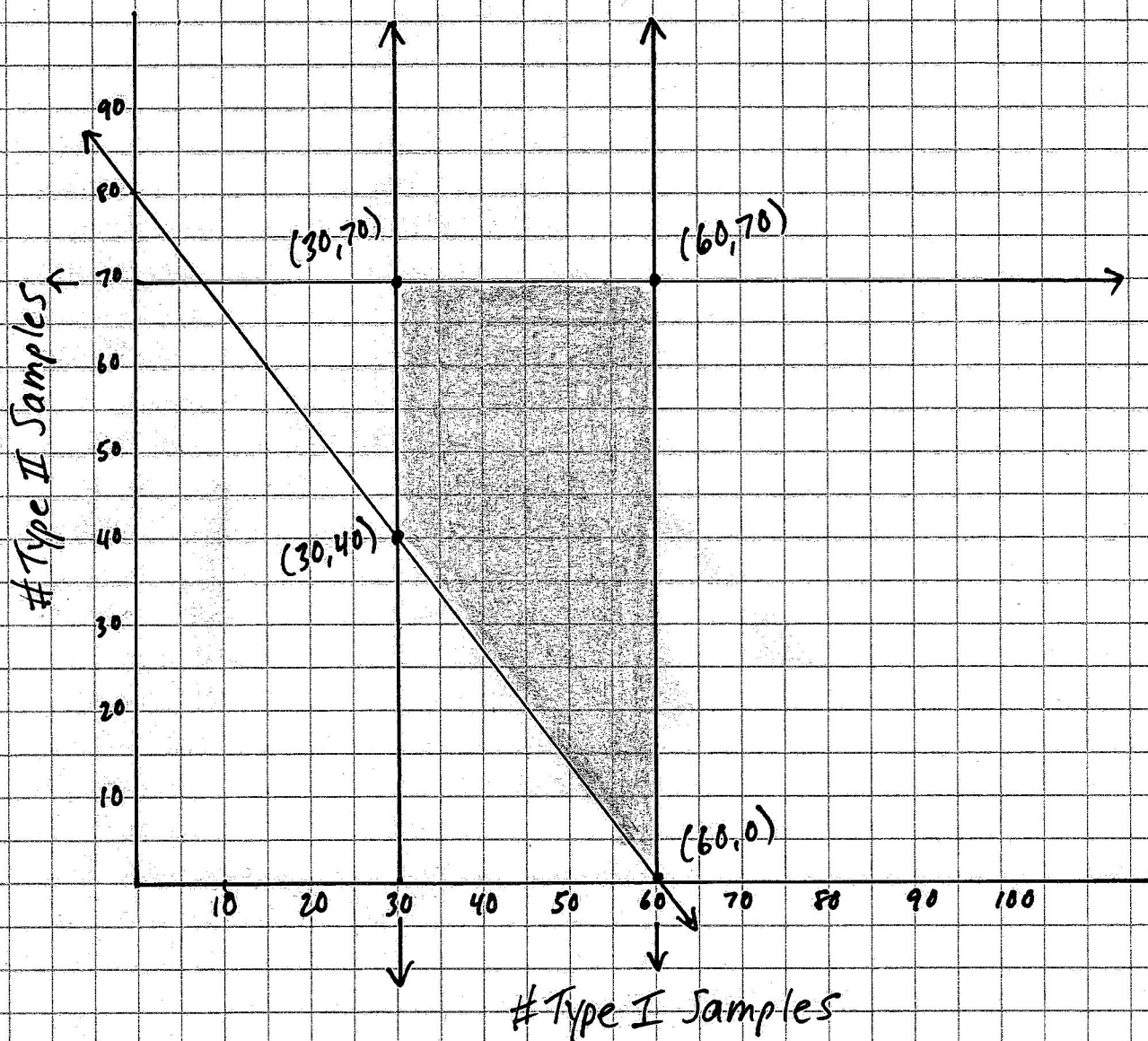
$$X \geq 30$$

$$Y \geq 0$$

$$(4X + 3Y \geq 240)$$

$$X \leq 60$$

$$Y \leq 70$$



$$\text{Cost} = 5X + 7Y$$

$$(30, 40) \rightarrow C = \$430$$

$$(30, 70) \rightarrow C = \$640$$

$$(60, 70) \rightarrow C = \$790$$

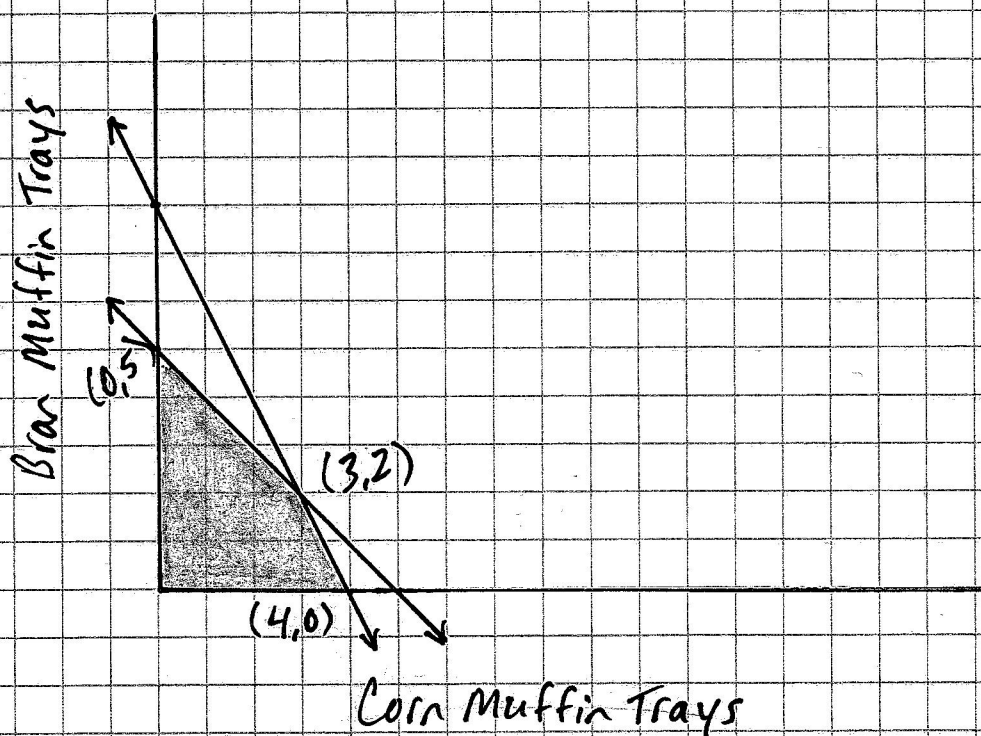
$$(60, 0) \rightarrow C = \$300$$

60 Type I Samples
0 Type II Samples

3) $X = \# \text{ trays of corn muffins}$
 $Y = \# \text{ trays of bran muffins}$

$$X \geq 0 \quad 4x + 2y \leq 16 \quad (2x + y \leq 8)$$

$$Y \geq 0 \quad 3x + 3y \leq 15 \quad (x + y \leq 5)$$



$$P = 3x + 2y$$

$$(4, 0) \rightarrow P = \$12$$

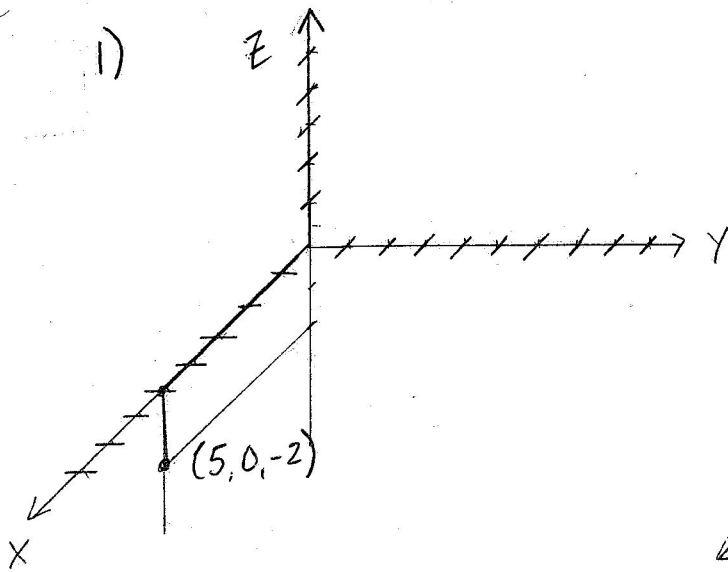
$$(3, 2) \rightarrow P = \$13$$

$$(0, 5) \rightarrow P = \$10$$

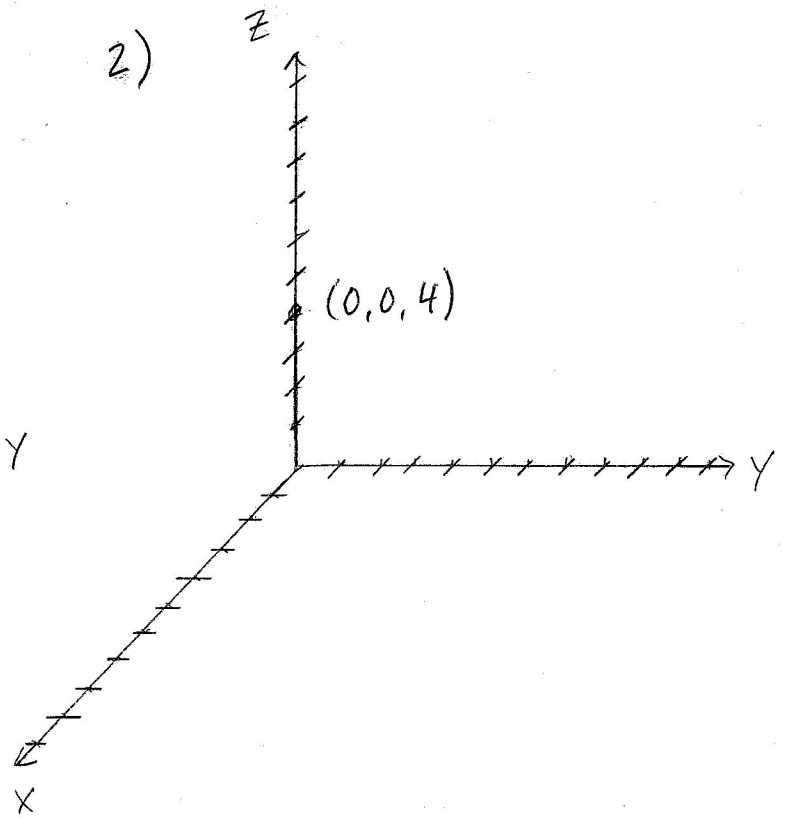
> 3 corn muffins
2 bran muffins

PROBLEM SET 3-5 AND 3-6

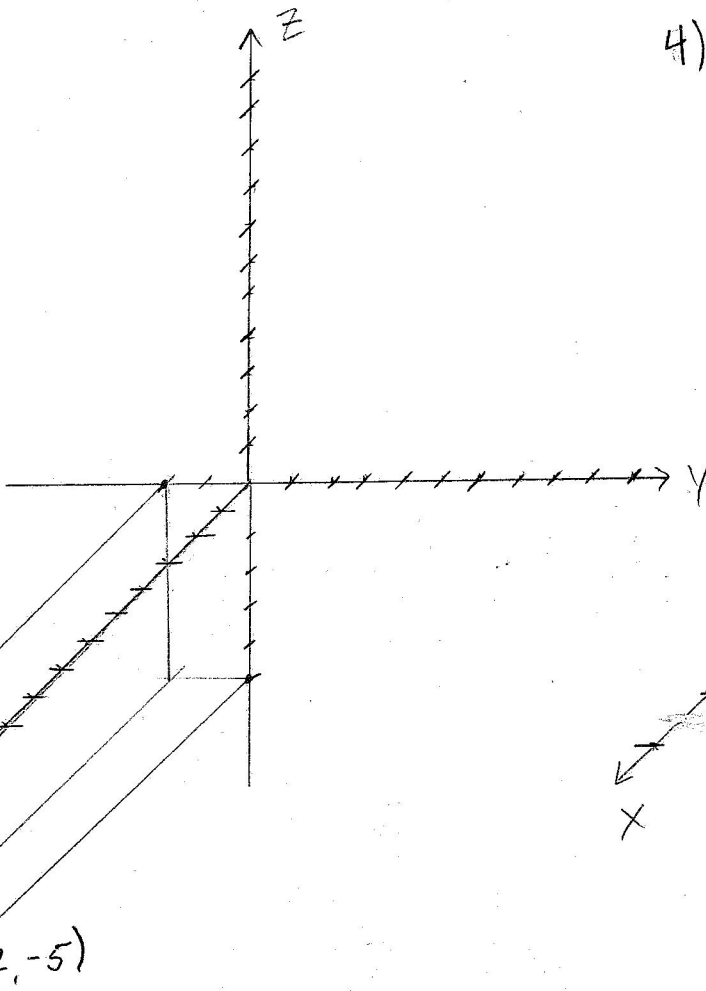
1)



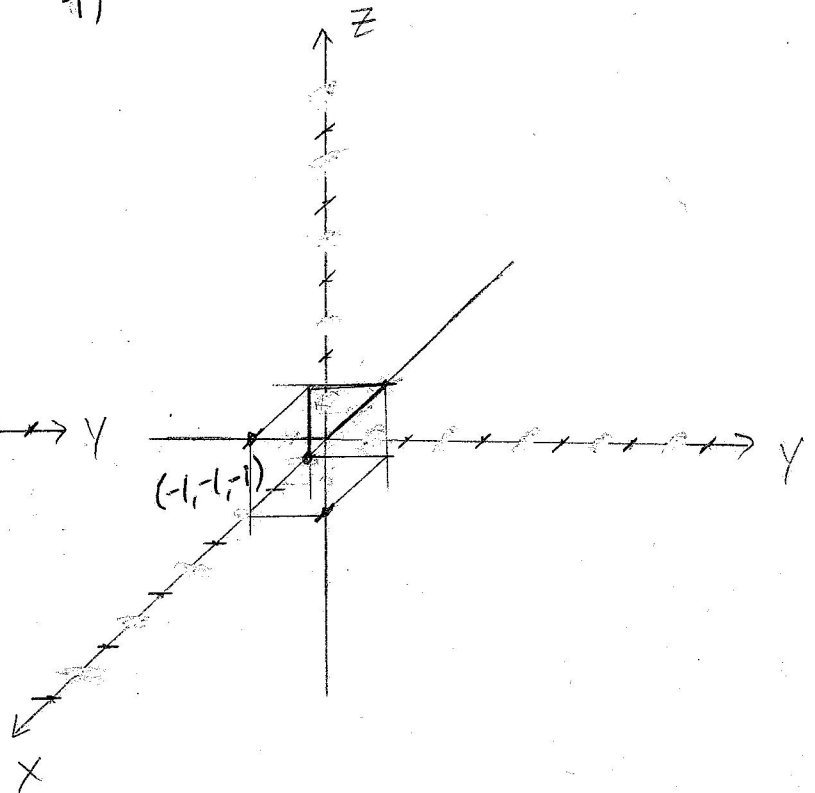
2)



3)

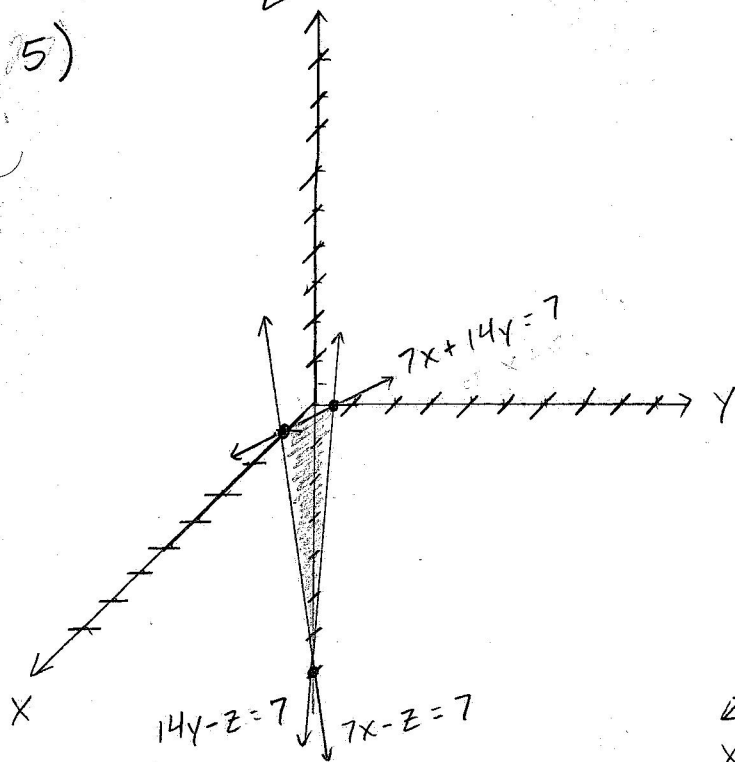


4)



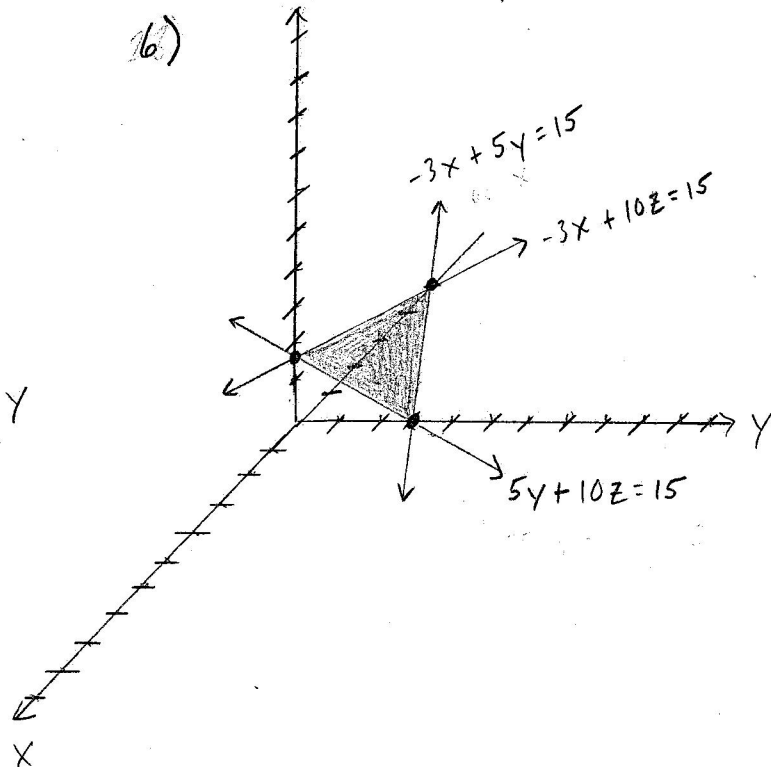
$$7x + 14y - z = 7$$

5)

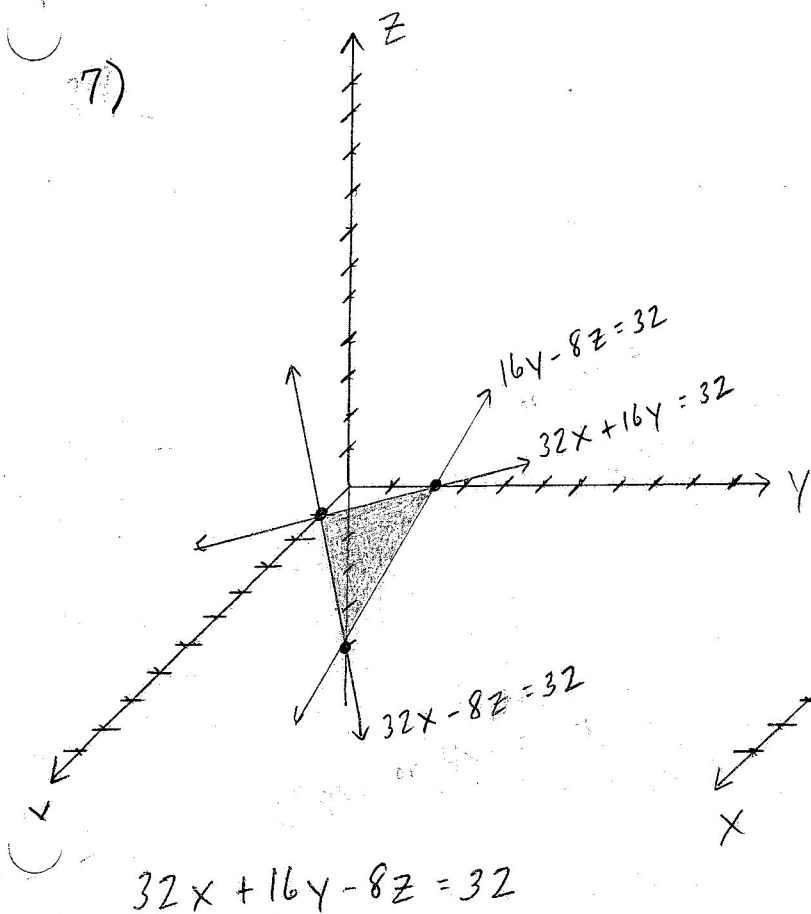


$$-3x + 5y + 10z = 15$$

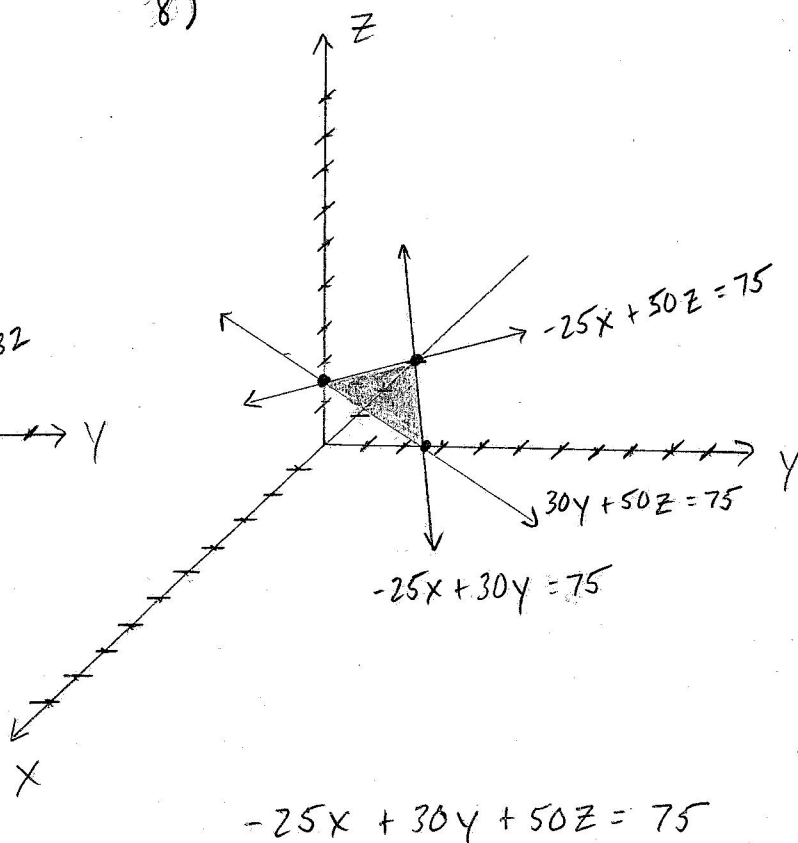
6)



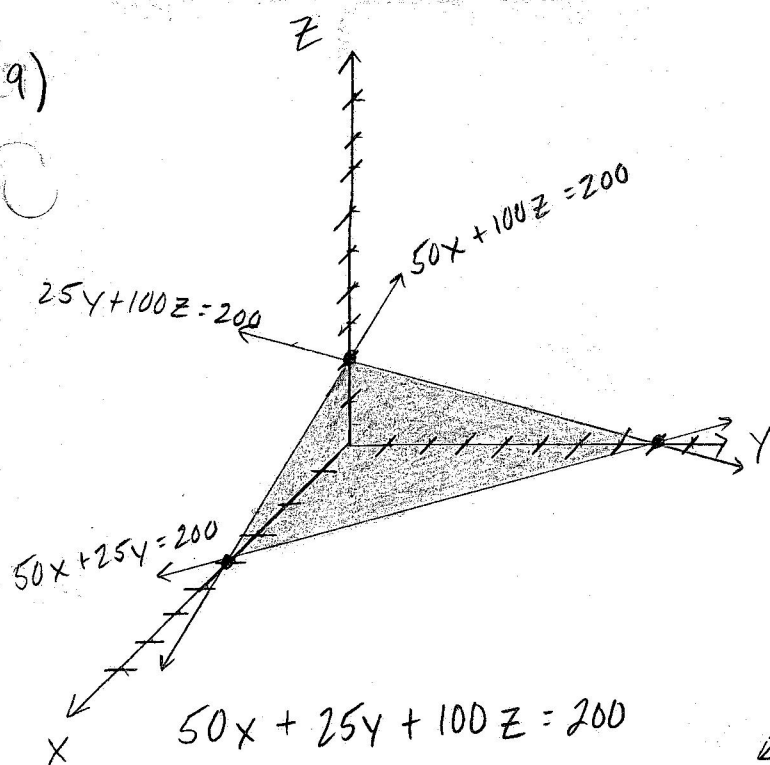
7)



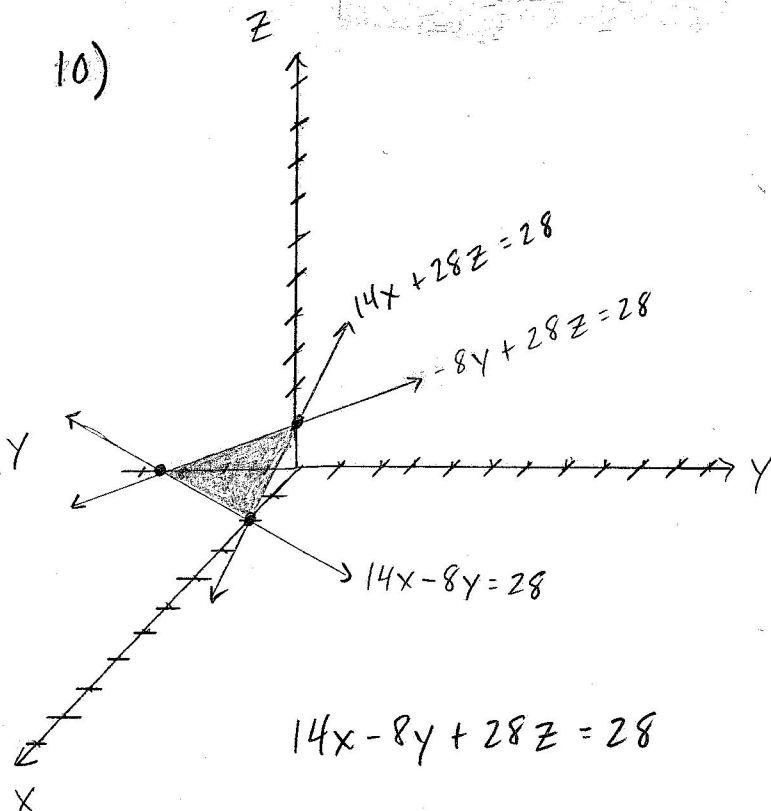
8)



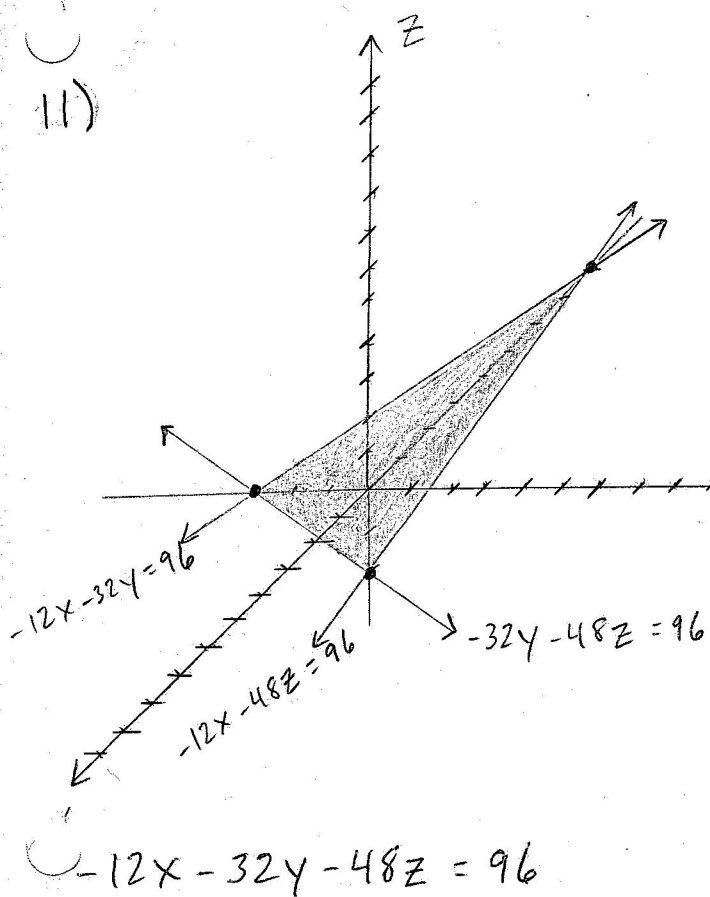
9)



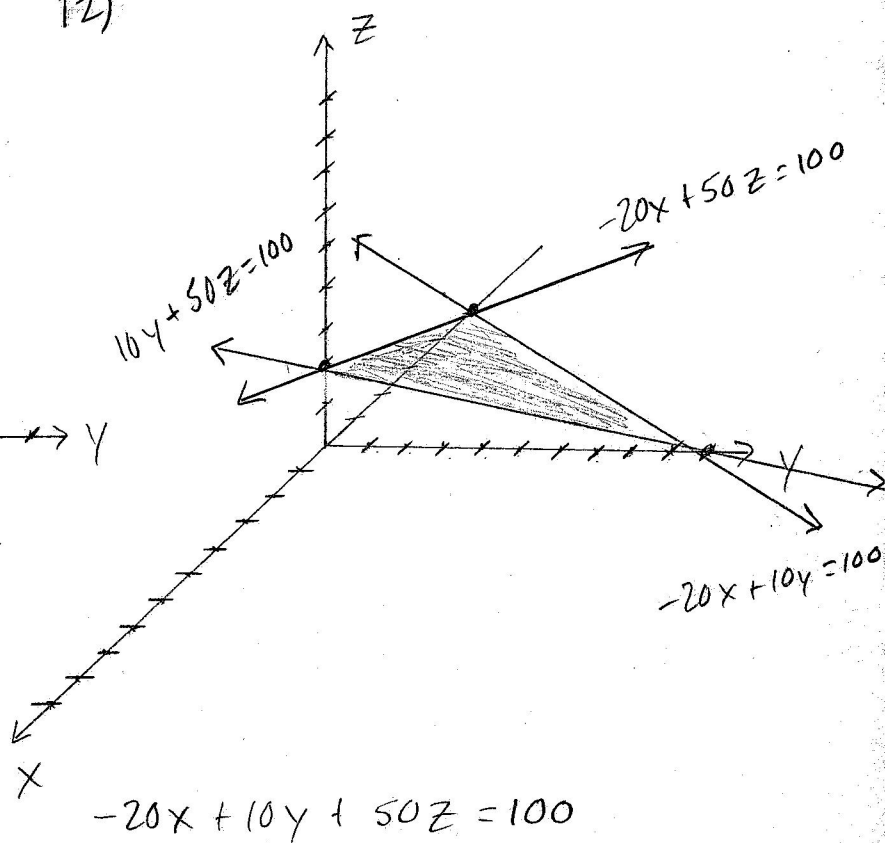
10)



11)



12)



13. $(8, 1, 3)$

14. $(\frac{1}{2}, 2, -3)$

15. No Solution

16. $(6, 1.5, 3.2)$

17. $(-\frac{10}{13}, -\frac{2}{13}, \frac{4}{13})$

18. $(2, \frac{10}{3}, \frac{5}{3})$