

Math M118 Practice Final Exam – Answers

1a. {2, 5, 6, 9, 10}

1b. {5, 9}

2a. True

2b. True

2c. False

2d. True

3. 62

4. 97,020

5. 9240

6. D

7a. 90

7b. 147

8. 199

9. 0.2381

10. 0.25

11. 0.2076

12. 0.8999

13. 0.66

14. 0.2

15a. 3.2

15b. 1.4697

16. 20 cents

17. 400

18. 8.6603

19. 0.6853

20. 0.9357

21. [a] 80 [b] 102

22. d

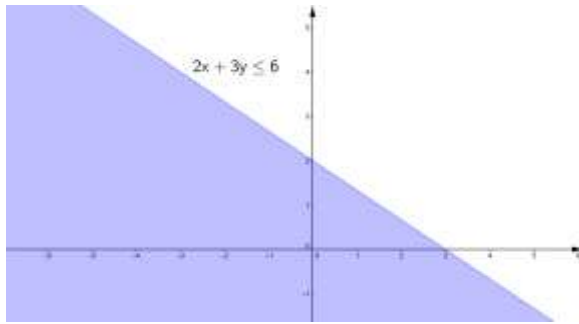
23. $\begin{bmatrix} 39 & 29 & -11 \\ 17 & 6 & -1 \end{bmatrix}$

24. $\begin{bmatrix} -9 & 6 \\ 1 & 6 \end{bmatrix}$

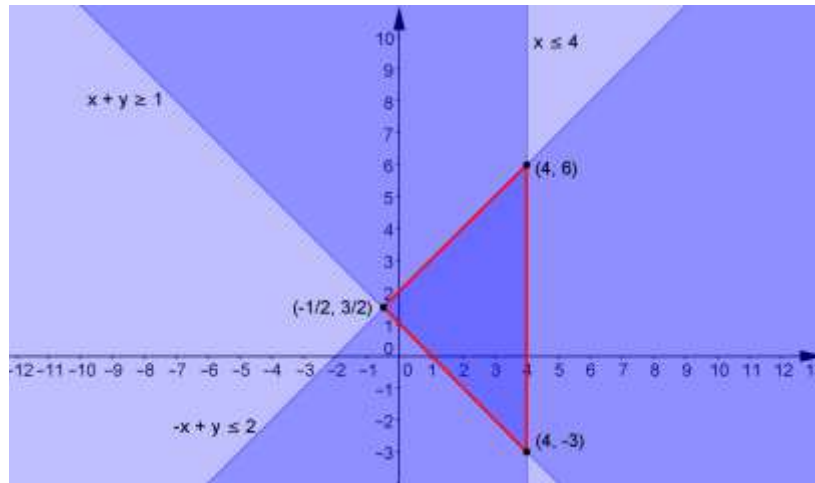
25. (-1, 2, 3)

26. Use 5 servings of corn and 10 servings of soybeans

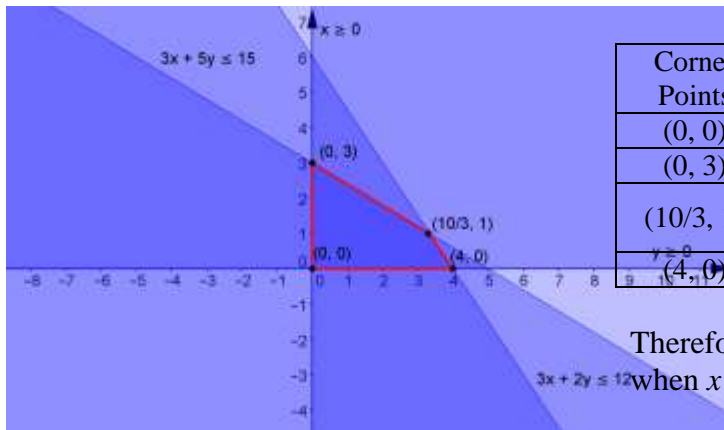
27.



28. Corner points: $(-\frac{1}{2}, \frac{3}{2})$, $(4, 6)$, $(4, -3)$



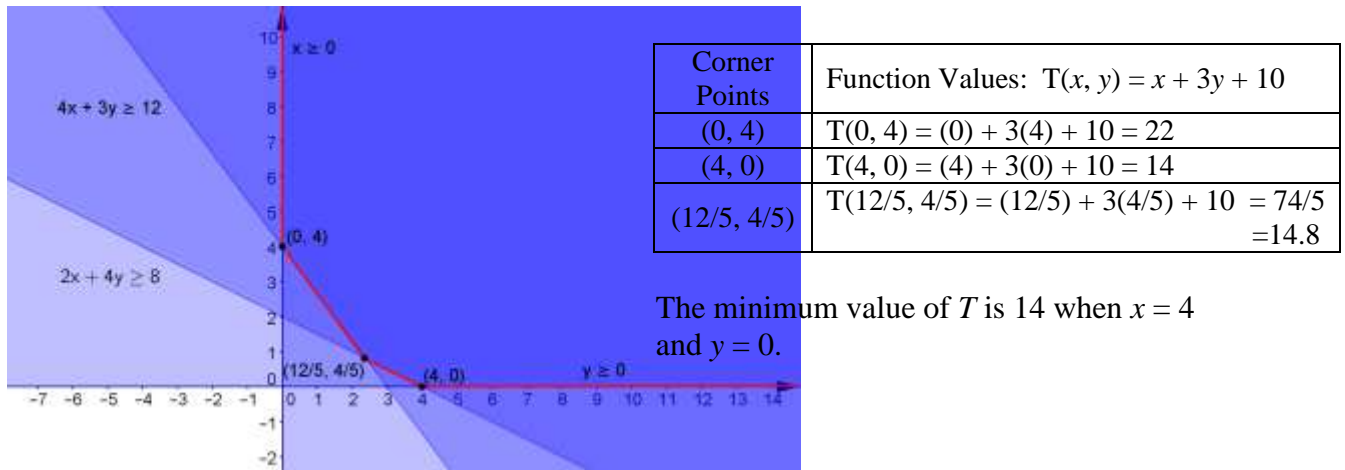
29.



Corner Points	Function Values: $f(x, y) = 2x + y$
$(0, 0)$	$f(0, 0) = 2(0) + (0) = 0$
$(0, 3)$	$f(0, 3) = 2(0) + (3) = 3$
$(10/3, 1)$	$f(10/3, 1) = 2(10/3) + (1) = 23/3 \approx 7.67$
$(4, 0)$	$f(4, 0) = 2(4) + (0) = 8$

Therefore, the maximum value of f is 8 when $x = 4$ and $y = 0$.

30.



31. Maximum profit is \$780 when 6 of Type X and 18 of Type Y are produced.

32. 0.46

33a. irreducible and regular

33b. not irreducible, not regular

34a.
$$T = \begin{matrix} S & O & R \\ S & \begin{bmatrix} 0.6 & 0.2 & 0.2 \end{bmatrix} \\ O & \begin{bmatrix} 0.6 & 0 & 0.4 \end{bmatrix} \\ R & \begin{bmatrix} 0.4 & 0.1 & 0.5 \end{bmatrix} \end{matrix}$$

34b. 0.52

34c. $P_1 = [0.56 \quad 0.12 \quad 0.32]$

35a. 0.36

35b. $P = [4/11 \quad 7/11]$