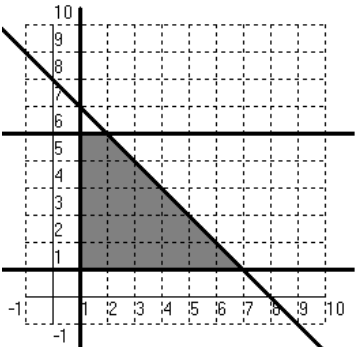


Algebra 2 SIX WEEKS TEST Review

DO ON OWN PAPER!

This review covers problems from TEST 2.1 and TEST 2.2. It would be wise to look over your old reviews and your graded tests in addition to completing this review.

I. Linear Programming

<p>1. Graph the region and find the vertices.</p> $\begin{cases} x \geq 0 \\ y \geq 0 \\ y \geq 4x - 4 \\ y \leq x + 5 \end{cases}$	<p>2. Maximize and minimize $P = -21x + 11y$ for problem #1.</p>	<p>3. Which restrictions are graphed?</p> 
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II. Use the matrices provided for #4-11.

$A = \begin{bmatrix} 3 & 4 \\ 1 & -2 \\ 0 & -1 \end{bmatrix}$				$B = \begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix}$		$C = \begin{bmatrix} 1 & -1 \\ 3 & 2 \\ 5 & -1 \end{bmatrix}$		$D = \begin{bmatrix} -2 & 1 & 4 \\ -1 & 0 & 3 \end{bmatrix}$		$E = \begin{bmatrix} 1 & -2 & 3 \\ -5 & 0 & 1 \\ -1 & 4 & 2 \end{bmatrix}$	
4. $A + B$		5. $C - A$		6. $-2D$		7. BD					
8. AC		9. E^{-1}		10. C_{22}		11. dimensions of AD					

III. Matrix Products.

<p>Given that $A_{5 \times 2}$, $B_{2 \times 5}$, $C_{1 \times 5}$, and $R_{5 \times 2}$, state what the dimensions of the products would be, if they are defined.</p>				
12. AB	13. CB	14. AR	15. RB	16. CA

IV. Determinants.

<p>17. If given $A = \begin{bmatrix} -1 & 3 \\ 2 & -4 \end{bmatrix}$, state the cross products and find $\det A$.</p>	<p>18. If given $B = \begin{bmatrix} -1 & 2 & 4 \\ 0 & 1 & 0 \\ 3 & -3 & 2 \end{bmatrix}$, state the cross products and find $\det B$.</p>
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V. Find the inverse of each matrix.

<p>19. $\begin{bmatrix} 2 & -3 \\ 4 & 1 \end{bmatrix}$</p>	<p>20. $\begin{bmatrix} -1 & 4 & 0 \\ 2 & 1 & 1 \\ -3 & -2 & 1 \end{bmatrix}$</p>
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VI. Solve using inverse matrices. Set up a matrix equation first!

<p>21. $\begin{cases} 3x - y = 6 \\ x = 2y + 1 \end{cases}$</p>	<p>22. $\begin{cases} x + 2y + z = 5 \\ 2x - y - 3z = 5 \\ -2x + 3y + z = -11 \end{cases}$</p>
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VII. Solve the matrix for each variable.

$$23. \begin{bmatrix} 4 & 2x+3 \\ 5y-1 & 2 \end{bmatrix} = \begin{bmatrix} 4 & -1 \\ 2y & 2 \end{bmatrix}$$

VIII. Simplify. No decimals.

$$24. \sqrt{98}$$

$$25. 4\sqrt{32}$$

$$26. 5\sqrt{12} \cdot \sqrt{24}$$

$$27. \sqrt{28} - 2\sqrt{63} + 5\sqrt{7}$$

$$28. \frac{7}{\sqrt{6}}$$

$$29. \frac{2\sqrt{3}+5}{\sqrt{3}}$$

IX. Simplify. No negative exponents in your final answer!

$$30. \frac{4a^{-2}b}{12a^3b^{-4}}$$

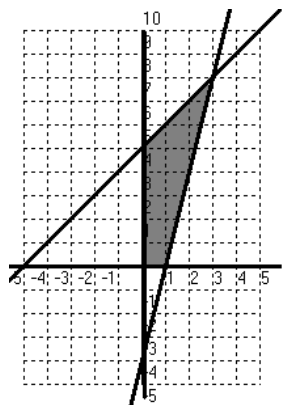
$$31. (3a^2b)^3(2ab^3)$$

$$32. \left(\frac{4a^{-2}b}{3a^4b^{-5}}\right)^{-2}$$

$$33. (4ab^2)(-3a^2b^4)$$

Answers:

1. Vertices $(0,0)$, $(1,0)$, $(3,8)$, and $(0,5)$



2. Maximum value of 55 at $(0,5)$,
Minimum value of -21 at $(1,0)$

$$3. \begin{cases} y \geq 1, y \leq 6 \\ y \leq -x + 8 \\ x \geq 1 \end{cases}$$

4. not possible

$$5. \begin{bmatrix} -2 & -5 \\ 2 & 4 \\ 5 & 0 \end{bmatrix}$$

$$6. \begin{bmatrix} 4 & -2 & -8 \\ 2 & 0 & -6 \end{bmatrix}$$

$$7. \begin{bmatrix} -8 & 4 & 16 \\ -4 & 0 & 12 \end{bmatrix}$$

8. not possible

$$9. \begin{bmatrix} \frac{2}{41} & \frac{8}{41} & \frac{1}{41} \\ \frac{9}{82} & \frac{5}{82} & \frac{8}{41} \\ \frac{10}{41} & \frac{1}{41} & \frac{5}{41} \end{bmatrix}$$

$$10. c_{22} = 2$$

$$11. 3 \times 3$$

$$12. 5 \times 5$$

13. not possible

14. not possible

$$15. 5 \times 5$$

$$16. 1 \times 2$$

$$17. -2$$

$$18. -14$$

$$19. \begin{bmatrix} \frac{1}{14} & \frac{3}{14} \\ -\frac{2}{7} & \frac{1}{7} \end{bmatrix}$$

$$20. \begin{bmatrix} -\frac{3}{23} & \frac{4}{23} & -\frac{4}{23} \\ \frac{5}{23} & \frac{1}{23} & -\frac{1}{23} \\ \frac{1}{23} & \frac{14}{23} & \frac{9}{23} \end{bmatrix}$$

$$21. \left(\frac{11}{5}, \frac{3}{5}\right)$$

$$22. (5, -1, 2)$$

$$23. x = -2, y = \frac{1}{3}$$

$$24. 7\sqrt{2}$$

$$25. 16\sqrt{2}$$

$$26. 60\sqrt{2}$$

$$27. \sqrt{7}$$

$$28. \frac{7\sqrt{6}}{6}$$

$$29. 2 + \frac{5\sqrt{3}}{3}$$

$$30. \frac{b^5}{3a^5}$$

$$31. 54a^7b^9$$

$$32. \frac{9a^{12}}{16b^{12}}$$

$$33. -12a^3b^6$$