

SCORE: ___ / 20 POINTS

What day of the month is your birthday ?

What are the last 2 digits of your address ?

What are the last 2 digits of your zip code ?

What are the last 2 digits of your social security number ?

[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER,
USE YOUR STUDENT ID NUMBER]**NO MATRIX CAPABLE CALCULATORS ALLOWED**

Find $\begin{vmatrix} 4^+ & 1 & -2 & -3 \\ -1^- & -3 & 5 & 2 \\ 0^+ & 2^- & 0 & 0 \\ 0 & 7 & 0 & -2 \end{vmatrix}$

$$= -2 \begin{vmatrix} 4^+ & -2 & -3 \\ -1^- & 5 & 2 \\ 0^+ & 0^- & -2^+ \end{vmatrix}$$

SCORE: ___ / 3 POINTS

$$= (-2)(-2) \begin{vmatrix} 4 & -2 \\ -1 & 5 \end{vmatrix}$$

$$= (-2)(-2)(20-2)$$

 $\frac{1}{2}$ POINT EACH

$$= 72$$

Solve for x : $\begin{vmatrix} x-2 & x \\ 3 & x-4 \end{vmatrix} = 0$.

SCORE: ___ / 2 POINTS

$$(x-2)(x-4) - 3x = 0$$

$$x^2 - 6x + 8 - 3x = 0$$

$$x^2 - 9x + 8 = 0$$

$$(x-1)(x-8) = 0$$

$$x = 1, 8$$

 $\frac{1}{2}$ POINT EACH

Find the partial fraction decomposition of $\frac{x^3}{(x+1)^2}$.

SCORE: ___ / 6 POINTS

$$\begin{array}{r} x^3 \\ x^3 + 2x^2 + x \\ \hline -2x^2 - x \\ -2x^2 - 4x - 2 \\ \hline 3x + 2 \end{array}$$

$$\frac{x^3}{(x+1)^2} = x - 2 + \frac{3x+2}{(x+1)^2}$$

$$= x - 2 + \frac{3}{x+1} - \frac{1}{(x+1)^2}$$

$$\frac{3x+2}{(x+1)^2} = \frac{A}{x+1} + \frac{B}{(x+1)^2}$$

$$3x+2 = A(x+1) + B$$

$$x = -1: -1 = B$$

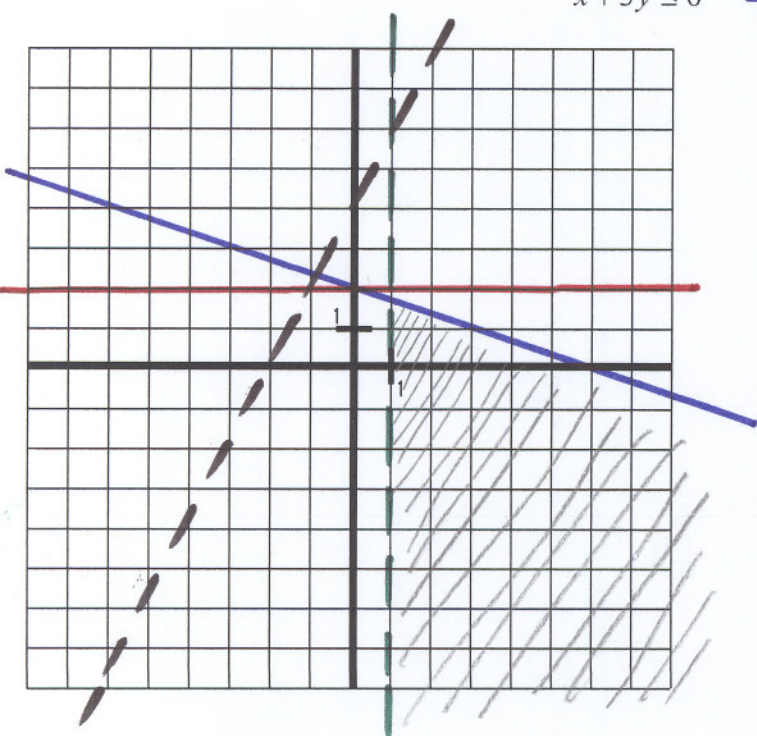
$$\text{COEF OF } x: 3 = A$$

$$\begin{aligned} \text{CHECK } x=0: 2 &= 3(1) + (-1) \\ &= 3 - 1 \\ &= 2 \checkmark \end{aligned}$$

Graph the solution of the system of inequalities

$$\begin{aligned} x &> 1 && \text{---} \\ y &\leq 2 && \text{---} \\ 2y - 4x &< 8 && \text{---} \\ x + 3y &\leq 6 && \text{---} \end{aligned}$$

SCORE: ___ / 6 POINTS



1 POINT FOR EACH LINE
DRAWN CORRECTLY
(INCLUDING WHETHER IT
IS DOTTED OR SOLID)

2 POINTS FOR CORRECT
SHADED REGION