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1a

$$\begin{pmatrix} 5 & 8 & -4 \\ 6 & 9 & -5 \\ 4 & 7 & -2 \end{pmatrix} \begin{pmatrix} 2 \\ -3 \\ 1 \end{pmatrix} = \begin{pmatrix} -18 \\ -20 \\ -15 \end{pmatrix}$$

$$b) \begin{pmatrix} -54.5 & 18 & 27 \\ -3 & 8 & 43 \\ 48 & -18 & -43 \end{pmatrix}$$

$$c) \begin{bmatrix} 29 & 124 \\ -17 & 35 \\ 8 & 39 \end{bmatrix}$$

d) calc do

$$e) |A| = -(-1)x \begin{vmatrix} 5 & 5 \\ 3 & 2 \end{vmatrix} + 2x \begin{vmatrix} 8 & 7 \\ 3 & 2 \end{vmatrix} - 0x \begin{vmatrix} 8 & 7 \\ 5 & 5 \end{vmatrix}$$

$$|A| = 1x(-25) + 2x(-5) + 0$$

$$|A| = -25 - 10$$

$$|A| = -35$$

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F)

$$0x \begin{vmatrix} 8 & 0.5 \\ 5 & 2 \end{vmatrix} - (-9)x \begin{vmatrix} -2 & 0.5 \\ 2 & 2 \end{vmatrix} + 1x \begin{vmatrix} -2 & 8 \\ 2 & 5 \end{vmatrix}$$

$$|B| 9x(-5) - 26$$

$$|B| = -45 - 26$$

$$|B| = -71$$

$$9) = \begin{vmatrix} 6 & 7 & 7.5 \\ -3 & 7 & 7 \\ 3 & -4 & 3 \end{vmatrix}$$

B

Can't be solved because constants aren't equal and there is no numbers for the variables that would make them even

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C

$$\begin{array}{c|c|c|c}
 -4x & 4x & -5 & 2 & -5 & 3 & 4x \\
 & x+1 & 3 & +x & x & -0x & 1 & x+1
 \end{array}$$

$$-4(17x+5) + x \cdot x + 11 + 0$$

$$|w| = 68x - 20 + 11x$$

$$|w| = -57x - 20$$

$$57x = -22$$

$$x = -\frac{22}{57}$$

$$x = 0.385$$

d

$$x = 7 - \frac{3}{2}y - z$$

$$x = 4 - 2y - 5z$$

$$x = \frac{19}{3} - \frac{1}{3}y + \frac{2}{3}z$$

$$3a) \int (x^5 - 2x)(5x^3 + 6x) dx$$

$$\int 5x^8 + 6x^6 - 10x^4 - 12x^2 dx$$

$$\int 5x^8 dx + \int 6x^6 dx - \int 10x^4 dx - \int 12x^2 dx$$

$$\frac{5x^9}{9} + \frac{6x^7}{7} - 2x^5 - 4x^3 + C$$

$$ii) \int (e^5 x - 2x)x(5x^3 + 6x) dx$$

$$\int 5x^3 e^{5x} + 6x e^{5x} - 10x^4 - 12x^2 dx$$

$$\int 5x^3 e^{5x} dx + \int 6x e^{5x} dx - \int 10x^4 dx - \int 12x^2 dx$$

$$x^3 e^{5x} - \frac{3x^2 e^{5x}}{5} + \frac{6x e^{5x}}{25} - \frac{6e^{5x}}{125} + \frac{6x e^{5x}}{5} - \frac{6e^{5x}}{25}$$

$$-2x^5 - 4x^3$$

$$x^3 e^{5x} - \frac{3x^2 e^{5x}}{5} + \frac{36x e^{5x}}{25} - \frac{36e^{5x}}{125} - 2x^5 - 4x^3$$

$$A'iii) \int_0^2 (3x^3 + 2x)^3 + 4x + 3 dx$$

$$\int (3x^3 + 2x)^3 + 4x + 3 dx$$

$$\int 27x^9 + 54x^7 + 36x^5 + 8x^3 + 4x + 3 dx$$

$$\frac{27x^{10}}{10} + \frac{27x^8}{4} + 6x^6 + 2x^4 + 2x^2 + 3x$$

$$\frac{24614}{5}$$

$$iv) \int_2^4 (2x+3)(x+5) dx$$

$$\int (2x+3)x(x+5) dx$$

$$\int 2x^2 + 10x + 3x + 15 dx$$

$$\int 2x^2 dx + \int 13x dx + \int 15 dx$$

$$\frac{2x^3}{3} + \frac{13x^2}{2} + 15x$$

$$\left( \frac{2x^3}{3} + \frac{13x^2}{2} + 15x \right) \Big|_0^4$$

$$\frac{620}{3}$$

3b.i)

$$\int 4x \cos 3x \, dx$$

$$4x \int x \times \cos(3x) \, dx$$

$$4 \left( x \times \frac{\sin(3x)}{3} - \frac{1}{3} x \int \sin(3x) \, dx \right)$$

$$4 \left( x \times \frac{\sin(3x)}{3} - \frac{1}{3} x \int \frac{\sin(t)}{3} \, dt \right)$$

$$4 \left( x \times \frac{\sin(3x)}{3} - \frac{1}{3} x \int \frac{\sin(t)}{3} \, dt \right)$$

$$4 \left( x \times \frac{\sin(3x)}{3} - \frac{1}{9} x (-\cos(t)) \right)$$

$$4 \left( x \times \frac{\sin(3x)}{3} - \frac{1}{9} x (-\cos(3x)) \right)$$

$$4x \times \frac{\sin(3x)}{3} + \frac{4 \cos(3x)}{9} + C$$

$$3bii) \int_1^2 3xe^{2x} dx$$

$$3 \left( x \times \frac{e^{2x}}{2} - \int \frac{e^{2x}}{2} dx \right)$$

$$3 \left( x \times \frac{e^{2x}}{2} - \frac{1}{2} \times \int e^{2x} dx \right)$$

$$3 \left( x \times \frac{e^{2x}}{2} - \frac{1}{2} \times \frac{1}{2} e^{2x} \right)$$

$$\frac{3xe^{2x}}{2} - \frac{3e^{2x}}{4}$$

$$\frac{3 \times 2e^{2 \times 2}}{2} - \frac{3e^{2 \times 2}}{4} - \left( \frac{3 \times 1e^{2 \times 1}}{2} - \frac{3e^{2 \times 1}}{4} \right)$$

$$\frac{9e^4 - 3e^2}{4}$$

$$ci) \int \frac{21x^2 + 10x - 3}{7x^3 + 5x^2 - 3x - 1} dx$$

$$\int \frac{1}{t} dt \quad \ln(|t|)$$

$$\ln(17x^3 + 5x^2 - 3x - 1) + c$$

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ciii)  $\int \frac{1}{x^2+4} dx = \frac{1}{3} x \arctan\left(\frac{x}{3}\right)$

$\arctan \frac{x}{3}$

+ C