p608 # 1, 3, 5, 13, 17, 21, 31

p616 # 5, 15, 21

p628 # 15, 29

(1) $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix} \times \begin{bmatrix} 3 & -1 \\ -5 & 2 \end{bmatrix} = \begin{bmatrix} 6-5 & -2+2 \\ 15-15 & -5+6 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ ✓

(3) $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \times \begin{bmatrix} -2 & 1 \\ 3/2 & -1/2 \end{bmatrix} = \begin{bmatrix} -2+3 & 1-1 \\ -6+6 & 3-2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ ✓

(5) $\begin{bmatrix} 2 & -17 & 11 \\ -1 & 11 & -7 \\ 0 & 3 & -2 \end{bmatrix} \times \begin{bmatrix} 1 & 1 & 2 \\ 2 & 4 & -3 \\ 3 & 6 & -5 \end{bmatrix} = \begin{bmatrix} 2-34+33 & 2-64+66 & 4+51-55 \\ -1+22-21 & -1+44-42 & -2-33+35 \\ 0+6-6 & 0+12-12 & 0-9+10 \end{bmatrix}$

$= \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ ✓

(13) $\begin{bmatrix} 1 & -2 \\ 2 & -3 \end{bmatrix}$ $\text{inv} = \frac{1}{-3+4} \begin{bmatrix} -3 & 2 \\ -2 & 1 \end{bmatrix} = \begin{bmatrix} -3 & 2 \\ -2 & 1 \end{bmatrix}$

(17) $\begin{bmatrix} 2 & 4 \\ 4 & 8 \end{bmatrix}$ $\text{inv} = \frac{1}{16-16} \begin{bmatrix} 8 & -4 \\ -4 & 2 \end{bmatrix}$ DNE

(21) $\begin{bmatrix} 1 & 1 & 1 \\ 3 & 5 & 4 \\ 3 & 6 & 5 \end{bmatrix}$ $\text{inv (from calc)} = \begin{bmatrix} 1 & 1 & -1 \\ -3 & 2 & -1 \\ 3 & -3 & 2 \end{bmatrix}$

(31) $\begin{bmatrix} -1/2 & 3/4 & 1/4 \\ 1 & 0 & -3/2 \\ 0 & -1 & 1/2 \end{bmatrix}$ inv(from calc) $= \begin{bmatrix} -12 & -5 & -9 \\ -4 & -2 & -4 \\ -8 & -4 & -6 \end{bmatrix}$

p616

(5) $\begin{vmatrix} 5 & 2 \\ -6 & 3 \end{vmatrix} = 15 - -12 = 27$

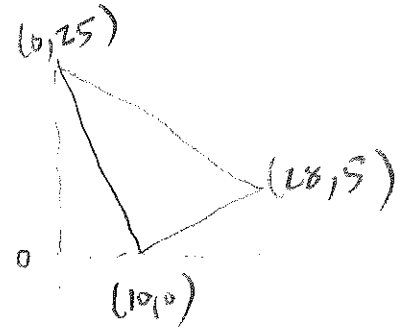
(15) $\begin{vmatrix} -\frac{1}{2} & \frac{1}{3} \\ -6 & \frac{1}{3} \end{vmatrix} = -\frac{1}{6} + (+2) = \frac{11}{6}$

(21) $\begin{vmatrix} 1 & 4 & -2 \\ 3 & 6 & -6 \\ -2 & 1 & 4 \end{vmatrix}$ det(from calc) $= 0$

p628

(15) $A = \pm\frac{1}{2}\begin{vmatrix} 1 & 5 & 1 \\ 3 & 1 & 1 \\ 0 & 0 & 1 \end{vmatrix} = -\frac{1}{2}(-14) = 7$

(29)



$A = \pm\frac{1}{2}\begin{vmatrix} 0 & 25 & 1 \\ 28 & 5 & 1 \\ 10 & 0 & 1 \end{vmatrix} = -\frac{1}{2}(-500)$

$= 250 \text{ m}^2$