

Start:  $A=(4, -3); B=(5, -1); C=(-1, -2)$

equation of line  $l: r = \begin{pmatrix} 1 \\ 2 \end{pmatrix} + s \begin{pmatrix} 3 \\ 4 \end{pmatrix}$

*Find an equation of the line passing through the point A parallel to BC*

*Find an equation of the line passing through the points A and B*

*Find an equation of the line passing through the point A perpendicular to BC*

*Find an equation of the line passing through the points A and C*

*Find an equation of the line passing through the point B parallel to AC*

*Find an equation of the line passing through the points B and C*

*Find an equation of the line passing through the point B perpendicular to AC*

*ABDC is a parallelogram.  
Find the position vector of D.*

*Find an equation of the line passing through the point C parallel to AB*

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*ACBD is a parallelogram.  
Find the position vector of D.*

The point  $\begin{pmatrix} 7 \\ 10 \end{pmatrix}$  lies on the line  $l$   
when  $s =$

Find an equation of the line passing through the  
point B parallel to the line  $r = \begin{pmatrix} 2 \\ 3 \end{pmatrix} + m \begin{pmatrix} 4 \\ 5 \end{pmatrix}$

The point  $\begin{pmatrix} -2 \\ -2 \end{pmatrix}$  lies on the line  $l$   
when  $s =$

Find an equation of the line passing through the  
point C parallel to the line  $r = \begin{pmatrix} 1 \\ 4 \end{pmatrix} + m \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

The point  $\begin{pmatrix} -8 \\ -10 \end{pmatrix}$  lies on the line  $l$   
when  $s =$

Find an equation of the line passing through the  
point A parallel to the line  $r = \begin{pmatrix} 2 \\ 3 \end{pmatrix} + m \begin{pmatrix} 4 \\ 5 \end{pmatrix}$

Find an equation of the  
line passing through the  
point A perpendicular to AC

Find an equation of the line passing through the  
point B perpendicular to the line  $r = \begin{pmatrix} 2 \\ 3 \end{pmatrix} + m \begin{pmatrix} 4 \\ 5 \end{pmatrix}$

Find an equation of the  
line passing through the  
point C perpendicular to AC

Find an equation of the line passing through the point  
A perpendicular to the line  $r = \begin{pmatrix} 2 \\ 3 \end{pmatrix} + m \begin{pmatrix} 3 \\ -2 \end{pmatrix}$