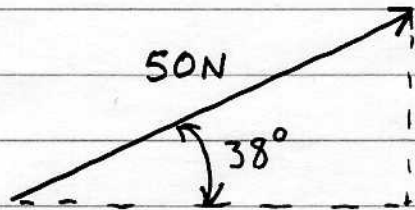


13.2 #8



horizontal:  $50 \cos 38^\circ = 39.4$

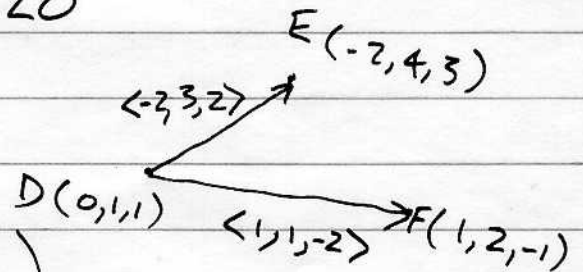
vertical:  $50 \sin 38^\circ = 30.8$

13.3 #10

$$\begin{aligned} \vec{a} \cdot \vec{b} &= |\vec{a}| |\vec{b}| \cos \theta \\ &= 4 \cdot 10 \cos \frac{2\pi}{3} \\ &= 40 \cdot \frac{-1}{2} = -20 \end{aligned}$$

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$$\begin{aligned} \theta &= \cos^{-1} \left( \frac{\vec{a} \cdot \vec{b}}{|\vec{a}| |\vec{b}|} \right) \\ \cos^{-1} \left( \frac{\langle -2, 3, 2 \rangle \cdot \langle 1, 1, -2 \rangle}{\sqrt{4+9+4} \cdot \sqrt{1+1+4}} \right) \\ &= \cos^{-1} \left( \frac{-2+3-4}{\sqrt{17} \sqrt{6}} \right) = \cos^{-1} \left( \frac{-3}{\sqrt{17} \sqrt{6}} \right) = 1.87 \end{aligned}$$



and similarly for other angles (in radians)

#20.  $\text{comp}_{\vec{a}} \vec{b} = \frac{\langle 1, 6, -2 \rangle \cdot \langle 2, -3, 1 \rangle}{\sqrt{4+9+1}} = \frac{-18}{\sqrt{14}}$

$\text{proj}_{\vec{a}} \vec{b} = \frac{\langle 1, 6, -2 \rangle \cdot \langle 2, -3, 1 \rangle}{14} \langle 2, -3, 1 \rangle$

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