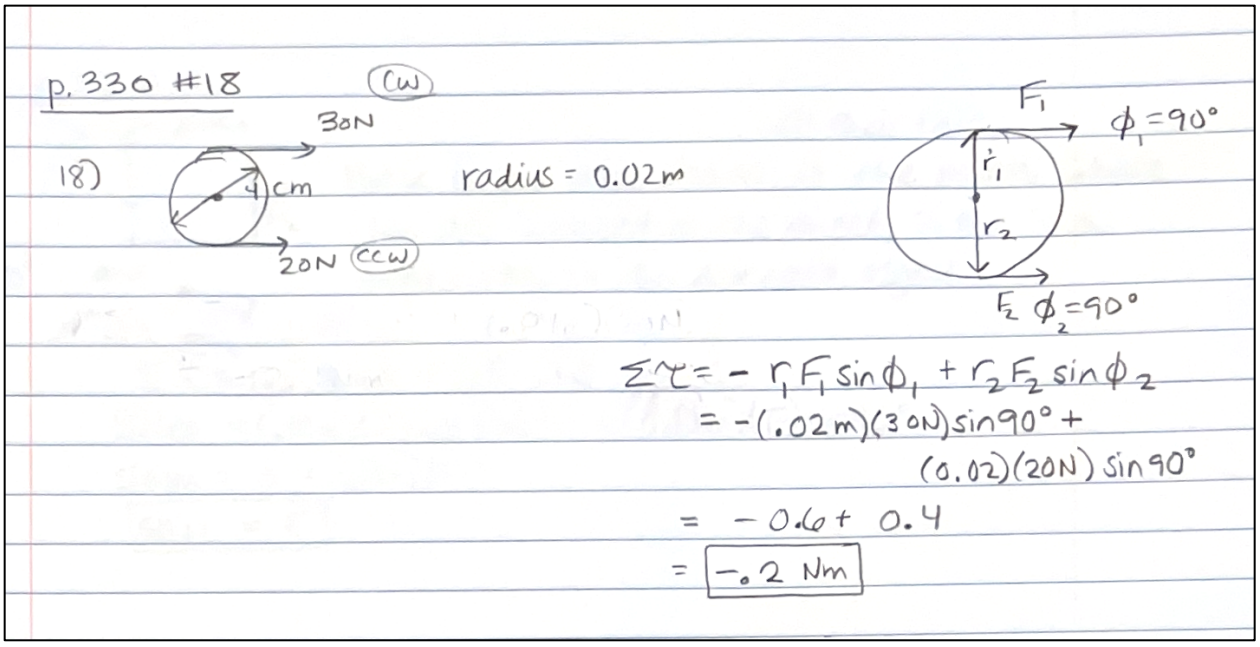
Unit 8 Practice: Answers and Solutions (P8-P14)
Your instructor greatly appreciates reports of any mistakes you find in these documents. ☺

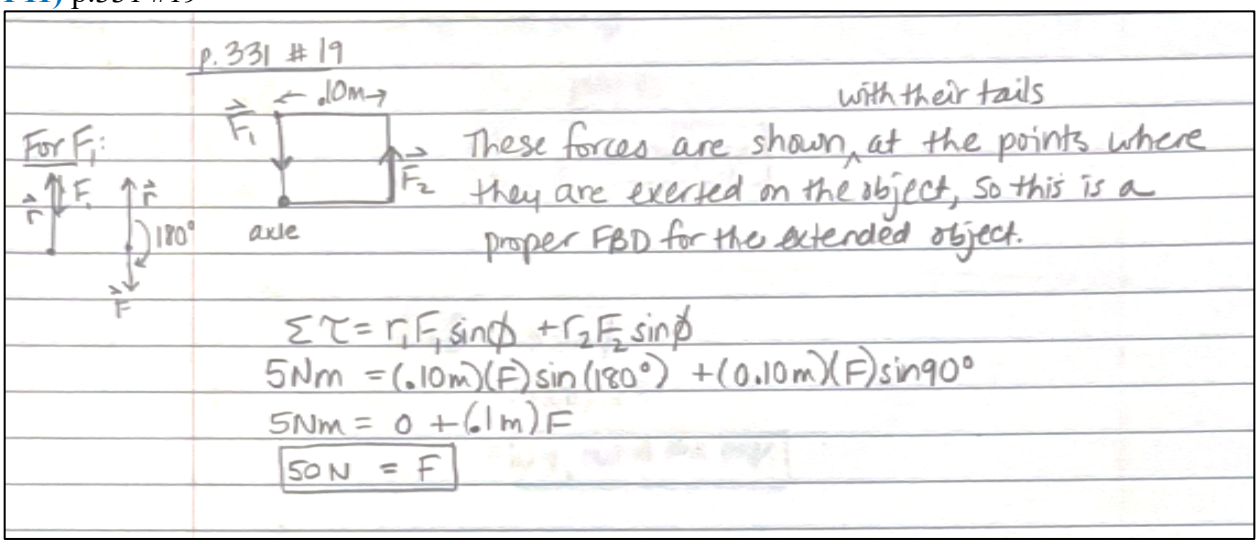
P8) Toward the bottom of the page

P9) Toward the top of the page

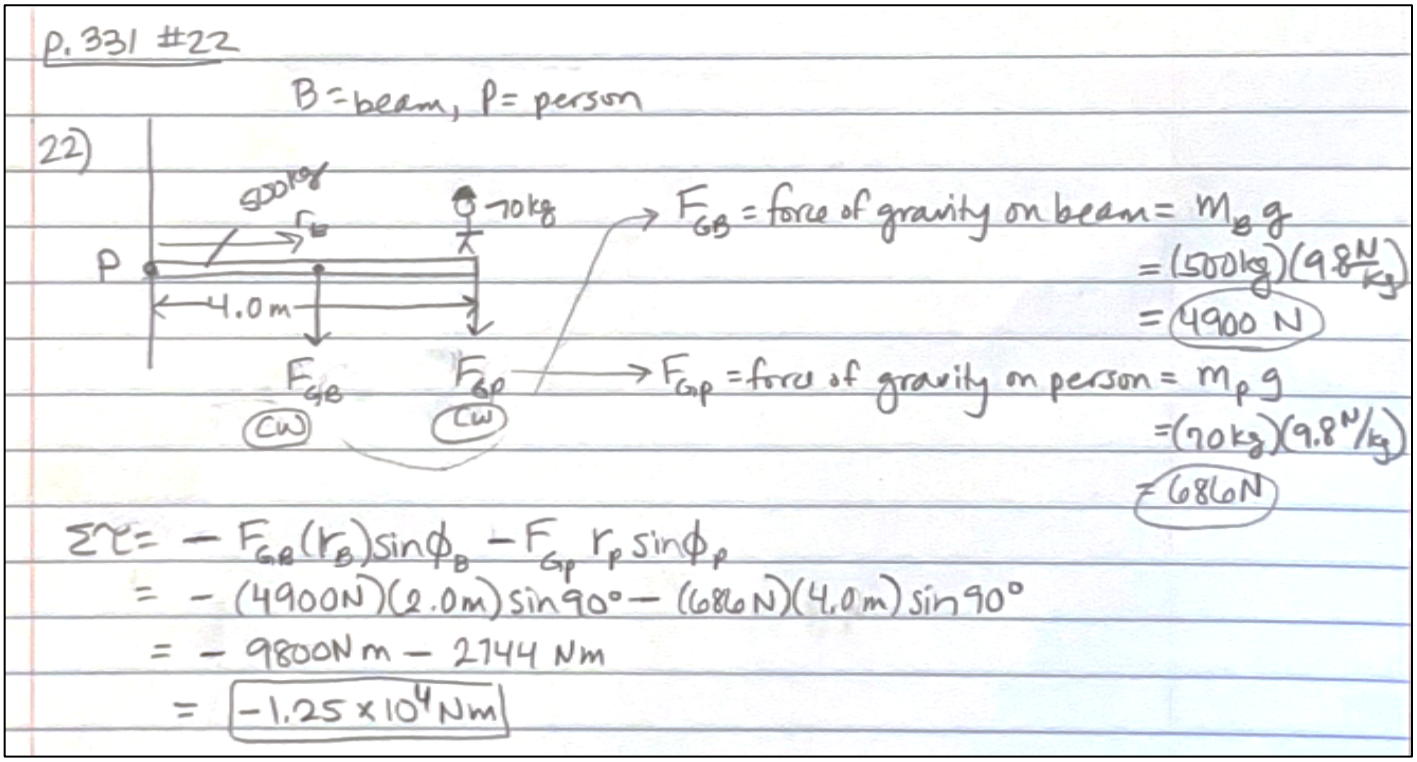
P10) p.330 #18



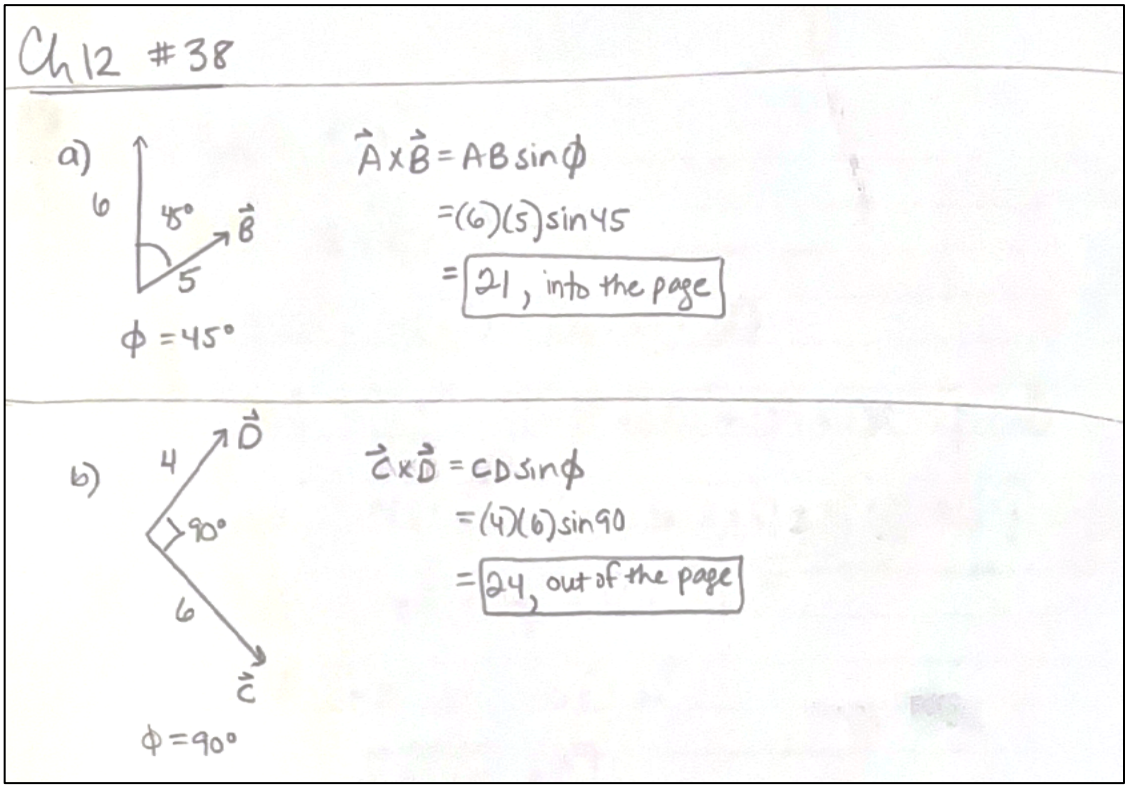
P11) p.331 #19



P12) p.331 #22



P13) p.332 #38



P14) p.332 #39

Ch 12 p.332 #39

39) $\vec{A} = 3\hat{i} + \hat{j}$

$\vec{B} = 3\hat{i} - 2\hat{j} + 2\hat{k}$

$\vec{A} \times \vec{B} = (3\hat{i} + \hat{j}) \times (3\hat{i} - 2\hat{j} + 2\hat{k})$

$\vec{A} \times \vec{B} = (3\hat{i}) \times (3\hat{i} - 2\hat{j} + 2\hat{k}) + (\hat{j}) \times (3\hat{i} - 2\hat{j} + 2\hat{k})$

$\vec{A} \times \vec{B} = 9(\hat{i} \times \hat{i}) - 6(\hat{i} \times \hat{j}) + 6(\hat{i} \times \hat{k}) + 3(\hat{j} \times \hat{i}) - 2(\hat{j} \times \hat{j}) + 2(\hat{j} \times \hat{k})$

$\vec{A} \times \vec{B} = -6\hat{k} + 6(-\hat{j}) + 3(-\hat{k}) + 2\hat{i}$

$\vec{A} \times \vec{B} = 2\hat{i} - 6\hat{j} - 6\hat{k} - 3\hat{k}$

$\vec{A} \times \vec{B} = \boxed{2\hat{i} - 6\hat{j} - 9\hat{k}}$

→ This step uses the distributive property, but instead of regular multiplication, it is "cross product" as the operator.

Here is what it looks like for regular multiplication:

$(a+b)(r+s+t) = a(r+s+t) + b(r+s+t)$

$= ar + as + at + br + bs + bt$