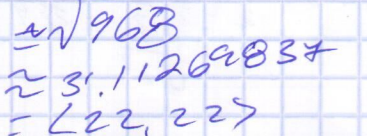
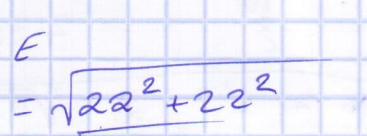
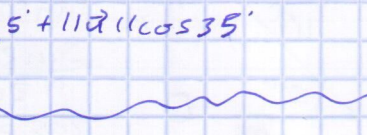
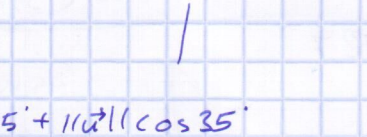
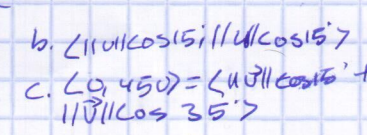
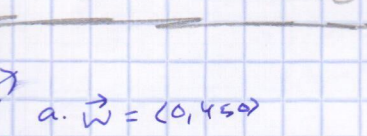
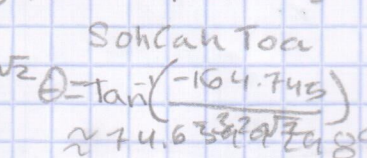
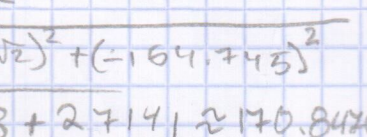
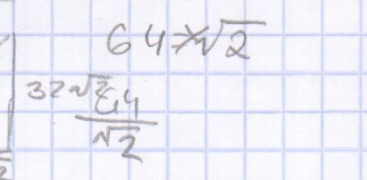
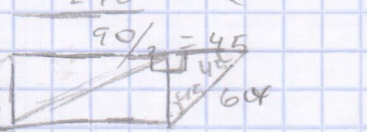
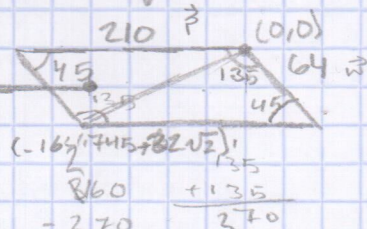
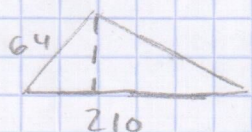
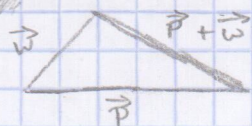
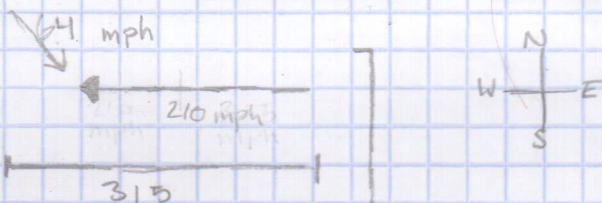
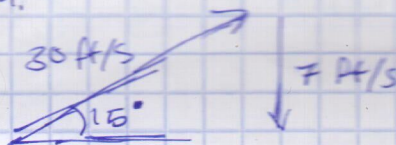


08

WEEK 13 PL



109.



$$a. (30 \cos 15^\circ, 30 \sin 15^\circ)$$

$$b. (30 \cos 15^\circ, 30 \sin 15^\circ - 7)$$

$$c. \frac{30 \cos 15^\circ}{1,000} \approx (30 \cos 15^\circ) 1,000 \approx 8.05 \text{ hr}$$

110. Because it's the Shear of elements.

111



$$25 = 8^2 + 6^2 - 2(6)(8)(\cos \alpha)$$

$$= 64 + 36 - 96 \cos \alpha$$

$$25 - 64 - 36 = -96 \cos \alpha$$

$$\alpha = \cos^{-1} \left(\frac{25 - 64 - 36}{-96} \right)$$

$$\approx 38.62$$

$$64 = 25 + 36 - 2(5)(6)(\cos \beta)$$

$$64 - 25 - 36 = -2(5)(6)(\cos \beta)$$

$$3 = -60 \cos \beta$$

$$3/-60 = \cos \beta$$

$$\beta = \cos^{-1} \left(\frac{3}{-60} \right)$$

$$\approx 92.87$$

$$\gamma = 180 - 92.87 - 38.62$$

$$\approx 48.51$$

112 14.06 hours

$$114 \quad x - \frac{1}{x} = 1$$

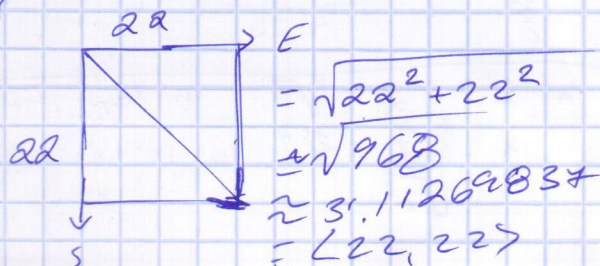
$$x^2 - 1 = x$$

$$x^2 - x = 1$$

$$x^2 - x - 1 = 0$$



101



$$= \sqrt{22^2 + 22^2}$$

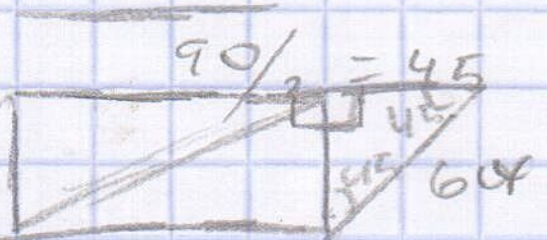
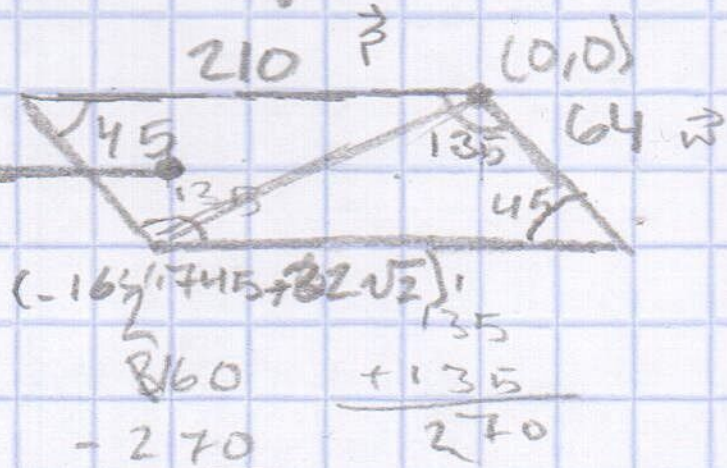
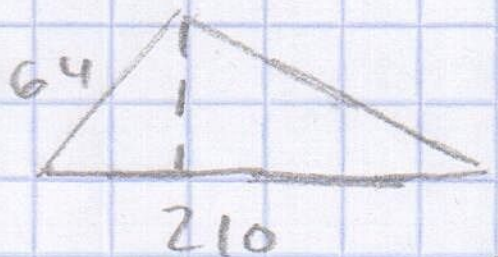
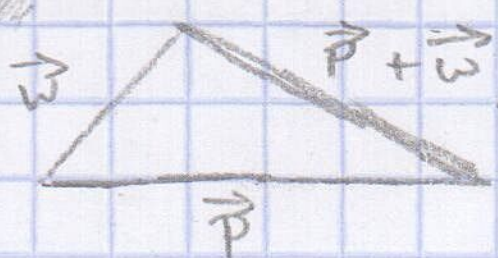
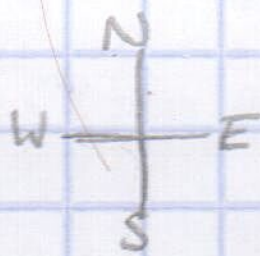
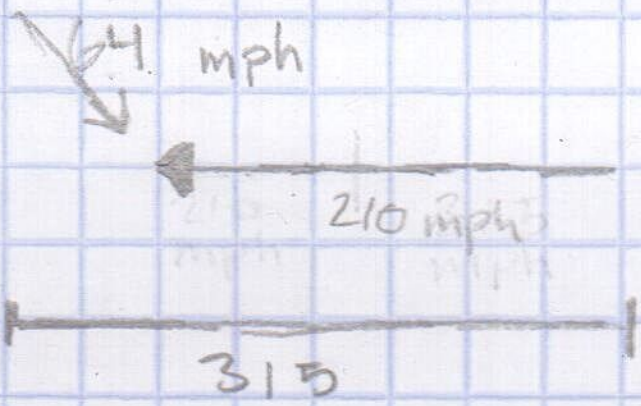
$$\approx \sqrt{968}$$

$$\approx 31.1269837$$

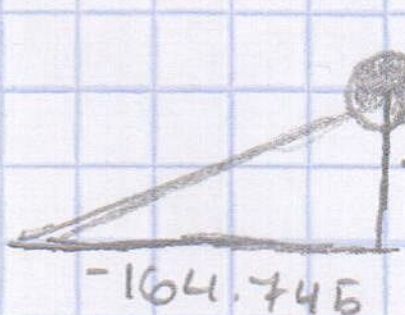
$$= \langle 22, 22 \rangle$$

08

WEEK 13 PL



$$(-164.745, -32\sqrt{2})$$



$$\sqrt{(-32\sqrt{2})^2 + (-164.745)^2}$$

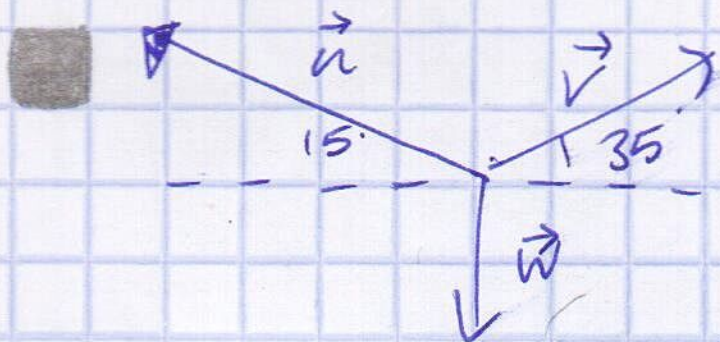
$$\sqrt{2048 + 27141} \approx 170.847$$

Sohkah Toa



$$\theta = \tan^{-1}(-164.745 / -32\sqrt{2})$$

$$\approx 74.63^\circ$$



$$a. \vec{w} = \langle 0, 45 \rangle$$

$$b. \langle 11\sqrt{11} \cos 15^\circ, 11\sqrt{11} \sin 15^\circ \rangle$$

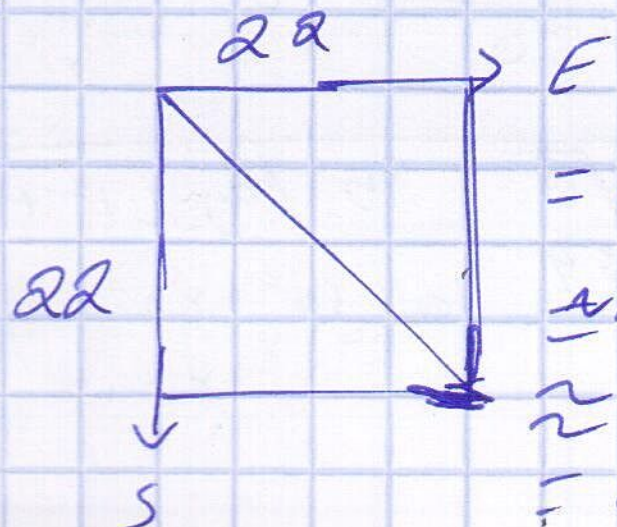
$$c. \langle 0, 45 \rangle = \langle 11\sqrt{11} \cos 15^\circ, 11\sqrt{11} \sin 15^\circ \rangle + \langle 11\sqrt{11} \cos 35^\circ, 11\sqrt{11} \sin 35^\circ \rangle$$

$$x = 0 = 11\sqrt{11} \cos 15^\circ + 11\sqrt{11} \cos 35^\circ$$

$$0 = 11\sqrt{11} \cos 15^\circ + 11\sqrt{11} \cos 35^\circ$$

$$-11\sqrt{11} \cos 35^\circ = 11\sqrt{11} \cos 15^\circ$$

101



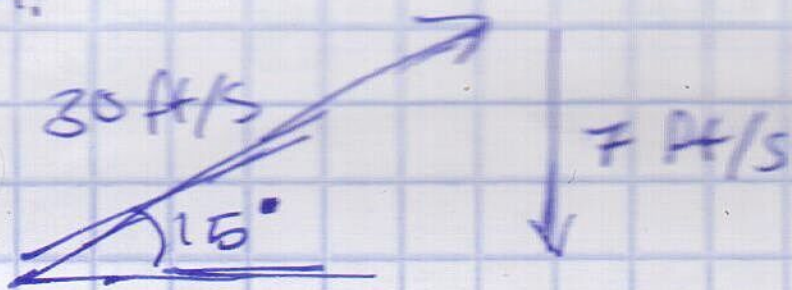
$$= \sqrt{22^2 + 22^2}$$

$$= \sqrt{968}$$

$$\approx 31.1269837$$

$$= \langle 22, 22 \rangle$$

109.



$$a. \langle 30 \cos 15^\circ, 30 \sin 15^\circ \rangle$$

$$b. \langle 30 \cos 15^\circ, 30 \sin 15^\circ - 7 \rangle$$

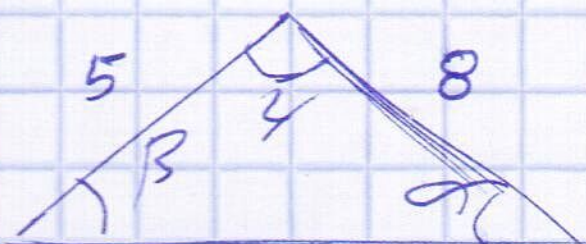
$$c. \frac{30 \cos 15^\circ}{1,000} \approx$$

$$(30 \cos 15^\circ) 1,000 \approx 8.05 \text{ hr}$$

110

Because it's the Shear of Enclaves.

111



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$$3 / -60 = \cos \beta$$

$$\beta = \cos^{-1} \left(\frac{3}{-60} \right)$$

$$\approx 92.87$$

$$\gamma = 180 - 92.87 - 38.62$$

$$\approx 48.51$$

112

4.06 hours

114

$$x - \frac{1}{x} = 1$$

$$x^2 - 1 = x$$

$$x^2 - x = 1$$

$$x^2 - x - 1 = 0$$



Chapter 11 closure

WEEK 13 PC

Complex #s: $a+bi$ "imaginary" part
"real" part

De Moivre's theorem: $z = r(\cos \theta + i \sin \theta)$

Product: the result of multiplication

Real number: Numbers that can be represented on a number line.

Rectangular Coordinates: Two real numbers to form an (x, y) pair.

Q3

$$a+b=10$$

$$b+a = 10 - 36 = -26$$

No solution.

$$a+b=10$$

$$b+a = -26$$

$$b = -26 - a$$

$$a = -26 - b$$

$$a+b=10$$

$$a - 26 - a = 10$$

$$-26 = 10$$

$$-26 + b + 4 = 10$$

Q4

$$i. 8 = r(4+3i) \quad ii. 6 = r(3-2i) \quad iii. 5 = r(2-7i) \quad iv. 10 = r(3-9i)$$

Q5

$$161. y = 10x$$

$$162. \sin \theta = \cos^3 \theta$$

163.

$$a. (-2+7i)(2+7i)$$

$$-4 - 14i + 14i + 49(-1)$$

$$-4 - 49 = -53$$

164.

$$a. (4, -4) \quad b. (2\sqrt{3}, 2)$$

167

$$a. \log_3 x$$

$$\log_3(x) = \log_2(19)$$

$$\log_3(x) = \log_2(19)$$

$$\log_3(x) = \log_2(19)$$

b.

$$(5-4i)-(6-5i)$$

$$5-4i-6+5i$$

$$-1+i$$

c.

$$(4-2i)(4-2i)$$

$$16-8i-8i-4(-1)$$

$$16-16i+4$$

$$20-16i$$