

**Aim: How do we prepare for the college placement exams (LIU)?**

*OCW:*

1. Finish worksheet
- 2.

**Agenda:**

1. Get Ready
2. Mini-lesson
3. Activity
4. Wrap up

Get Ready: Below are sample problems from the LIU Math Assessment placement exams. Begin the placement exam. Check your answers at the end.

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$$\begin{array}{r} \textcircled{2} \quad \underline{x^5 + 32} \leftarrow \\ \quad \quad x + 2 \\ \begin{array}{r} \text{vs} \\ -2 \end{array} \left| \begin{array}{cccccc} & x^4 & x^3 & x^2 & x & \# \\ 1 & 0 & 0 & 0 & 0 & +32 \\ & -2 & 4 & -8 & 16 & -32 \\ \hline 1 & -2 & 4 & -8 & 16 & \textcircled{0} \end{array} \end{array}$$

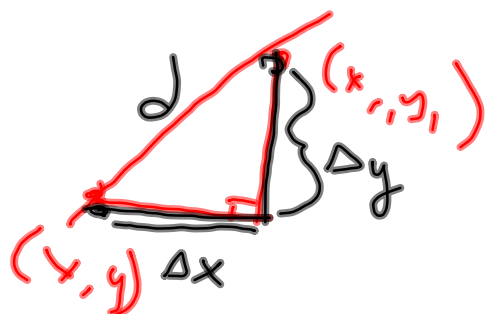
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MIDPOINT

$$(x, y) \quad (x_1, y_1) \xrightarrow{\text{AVERAGE}}$$

$$\left( \frac{x+x_1}{2}, \frac{y+y_1}{2} \right)$$

DISTANCE → PYTH. TH.



$$d^2 = (\Delta x)^2 + (\Delta y)^2$$

$$d^2 = (x-x_1)^2 + (y-y_1)^2$$

$$d = \sqrt{(x-x_1)^2 + (y-y_1)^2}$$

$$M = \frac{\text{RISE}}{\text{RUN}} = \frac{\Delta y}{\Delta x} = \frac{y-y_1}{x-x_1}$$

"RISE UP - WISE UP"

RISE ↑  
RUN

Y's UP

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$$5. \quad \frac{3}{x^2-4} = \frac{2}{x+2} + \frac{3}{x-2}$$

$$\frac{3}{(x+2)(x-2)} = \frac{2}{x+2} + \frac{3}{x-2}$$

$$3 = 2(x-2) + 3(x+2)$$

$$3 = 2x - 4 + 3x + 6$$

$$3 = 5x + 2$$

$$-3 = 5x$$

$$\frac{-3}{5} = x$$

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$$3. \frac{5-7i}{3+2i} \cdot \frac{3-2i}{3-2i}$$

RATIONALIZE  
"CONJUGATE"

$$i \cdot i = i^2 = -1$$

$$(3+2i)(3-2i)$$

$$9 - 6i + 6i - 4i^2$$

$$= 9 - 4(-1) = 9 + 4 = 13$$

$a + bi$

↑

$$(5-7i)(3-2i)$$

5	-2i	
3	15	-6i
-2i	-10i	+4i <sup>2</sup>

$4i^2 = 4(-1) = -4$

$$11 - 16i$$

$$= \frac{11-16i}{13} = \frac{11}{13} - \frac{16i}{13}$$

$$\begin{aligned}
 & \frac{5}{3+\sqrt{2}} \cdot \frac{3-\sqrt{2}}{3-\sqrt{2}} \\
 &= \frac{5(3-\sqrt{2})}{7} \\
 &= \frac{15-5\sqrt{2}}{7} \\
 &= \frac{15}{7} - \frac{5\sqrt{2}}{7}
 \end{aligned}$$

	3	$-\sqrt{2}$
3	9	$-3\sqrt{2}$
$+\sqrt{2}$	$3\sqrt{2}$	-2

$9 - 2 = 7$

$$\begin{aligned}
 & (x+3)(x-3) \\
 & x^2 \boxed{+3x-3x} - 9 \\
 & x^2 - 9
 \end{aligned}$$

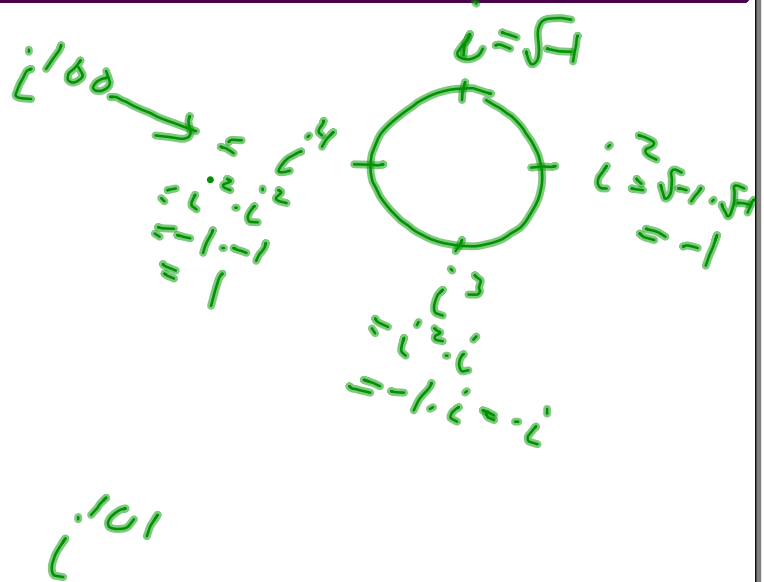
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$$i^5 = i^4 \cdot i = i$$

$$i^6 = i^4 \cdot i^2 = -1$$

$$i^7 = i^4 \cdot i^3 = -i$$

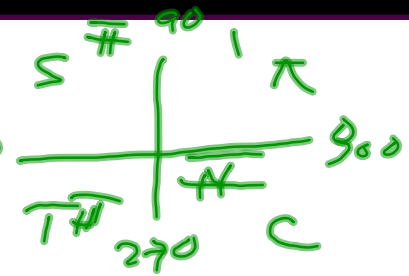
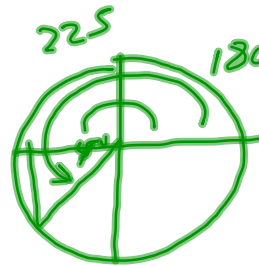
$$i^8 = i^4 \cdot i^4 = 1$$



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$$17. \cos \frac{5\pi}{4}$$

$$= \cos 225^\circ$$



Q III

$$\text{Ref } \angle = 225 - 180 = 45^\circ$$

$$\cos \theta < 0$$

$$= -\cos 45^\circ$$

$$= -\frac{\sqrt{2}}{2}$$

$$\cos 45^\circ$$

$$= \sin 45^\circ$$

$$= \frac{\sqrt{2}}{2}$$

$$\frac{\pi}{2} = 90$$

$$\frac{\pi}{2} = 90$$

$$\frac{\pi}{4} = 45^\circ$$

$$\frac{\pi}{3} = 60$$

$$\frac{\pi}{6} = 30$$

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$$\sin 30 = \cos 60$$

sin

C → S

S → C

sc