Aim: How do we prepare for the college placement exams (College Board)?

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 College Board College Level Math assessment.
Begin the assessment. Check your answers at the end.

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(1) $2^{\frac{5}{2}} - 2^{\frac{3}{2}}$

$= 2^{\frac{3}{2}}\left(2^{\frac{2}{2}} - 1\right)$

$= 2^{\frac{3}{2}}\left(2^{1} - 1\right)$

$= 2^{\frac{3}{2}}(2-1) = 2^{\frac{3}{2}}(1)$

$x^5 - x^3$

$= x^3\left(x^2 - 1\right)$

$= x^3\left(\frac{x^5}{x^3} - \frac{x^7}{x^3}\right)$

$\frac{2^{\frac{5}{2}}}{2^{\frac{3}{2}}} = 2^{\frac{5}{2}-\frac{3}{2}}$

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(2) $\frac{1}{x} = \frac{1}{a} - \frac{1}{b}$

$\frac{1}{x} = \left(\frac{a}{a}\right)\frac{1}{b} - \frac{1}{a}\left(\frac{b}{b}\right)$

$\frac{1}{x} = \frac{a}{ab} - \frac{b}{ab}$

$\frac{1}{x} = \frac{a-b}{ab}$

$x = \frac{x}{1} = \frac{ab}{a-b}$

$= \left(\frac{3}{3}\right)\frac{1}{2} + \frac{1}{3}\left(\frac{2}{2}\right)$

$= \frac{3}{6} + \frac{2}{6}$

$= \frac{5}{6}$

$x(a-b) = ab$

$x = \frac{ab}{a-b}$

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$$\frac{2}{3} = \frac{4}{6}$$

$$\frac{3}{2} = \frac{6}{4}$$

$$\frac{1}{x} = \frac{2}{3}$$

$$x = \frac{3}{2}$$

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(B) PARALLEL → SAME SLOPE

$y = 2x \rightarrow y = mx + b$

$m = 2$

slope

m → mountains

"m" slope

(A) $4x - y = 4$

$-4 \quad +y \quad -4 \quad +y$

$4x - 4 = y \quad m = 4$

(C) $2x - y = 4$

$-4 \quad +y \quad -4 + y$

$2x - 4 = y$

$m = 2$

(D) $2x + y = 2$

$-2x \quad -2x$

$y = -2x + 2$

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(6) $y = mx + b$ $(0,0)$ $(1,2)$

$y = 2x + 0$ $b = 0$

$y = 2x$

$m = \frac{\text{RISE}}{\text{RUN}} = \frac{\Delta y}{\Delta x} = \frac{y - y_1}{x - x_1} = \frac{2-0}{1-0} = 2$

"RISE UP, y's up"

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(4) Let

$x = 1 - BED$

$y = 2 - BED$

#

$x + y = 12$

$x = 12 - y$

#

$360x + 450y = 4950$

$360(12 - y) + 450y = 4950$

$4320 - 360y + 450y = 4950$

$-4320 \quad -4320$

$90y = 630$

$y = 7$

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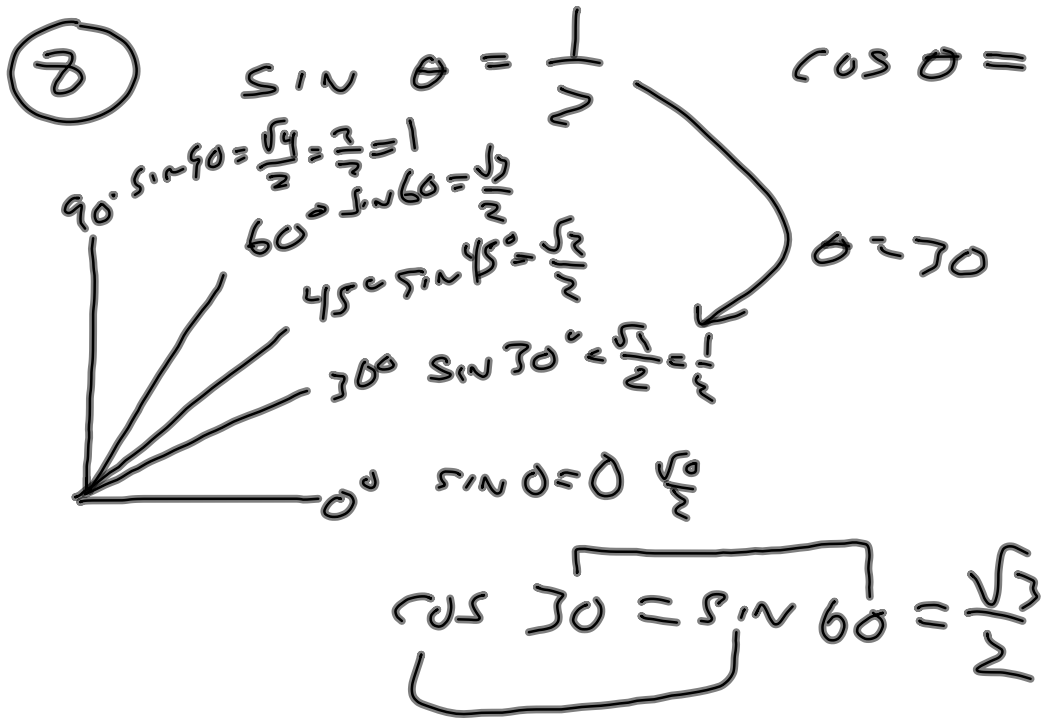

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(3) $f(g(x))$ ←

$f(g(x)) = x$

$g(f(x)) = x$

$f\left(\frac{x-1}{2}\right) = 2\left(\frac{x-1}{2}\right) + 1$

$= x - 1 + 1 = x$

$g(x) = f^{-1}(x)$

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