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Station #1: Solving Rational Equations

Solve.

Problem A: $\frac{x-3}{x+1}=2-\frac{x-9}{x^2-2x-3}$

Problem B: $3=\frac{6x-1}{2x+7}+\frac{22}{x+5}$

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Station #2: Characteristics of Conics

Problem A: Find the length of the major axis.

$$5x^2 - 20x + 16y^2 - 96y + 84 = 0$$

Problem B: Find the length of the latus rectum.

$$y^2 - 2y + 16x = 47$$

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Station #3: Sequences

Problem A: If $S_5 = 190$ and $t_1 = -12$, find d.

Problem B: If $r = 3$ and $a_6 = -729$, find S_5

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Station #4: Trig Identities

Given $\sin A = \frac{3}{5}$, where $\frac{\pi}{2} \le A \le \pi$, and $\cos B = \frac{7}{25}$, where $0 \le B \le \frac{\pi}{2}$

Problem A: Find the exact value of $\cos(B - A)$

Problem B: Find the exact value of $\sin(2A)$

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Station #5: Graphing Rational Functions

Given $f(x)=\dfrac{(4x^2+4x-3)(x^2-9)}{(x+3)(x-2)^2(x+1)}$

Problem A: Find the product of the horizontal asymptote and the vertical asymptotes

Problem B: Find the sum of the x-and y-intercepts

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Station #6: Inverse Trig and Compositions

Problem A: $\mathit{C}\text{os}^{-1}\left(\sin\left(-\frac{3\pi}{2}\right)\right)$

Problem B: $\tan\left(\text{Cos}^{-1}\left(-\frac{40}{41}\right)\right)$

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Station	Problem A	Problem B	Sum
#1			**-3**
#2			**24**
#3			**-338**
#4			$-\frac{76}{125}$
#5			$-\frac{15}{4}$
#6			$-\frac{9}{40}$