# Worksheet IIB

## Pre-calculus Algebra

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## Questions and Exercises

1. Consider the expression $(3x^3 + 5x^2 - 26x + 8) \div (4x^2 - 7x - 2)$ when it exists (when the denominator is not zero (for all $x \in \mathbb{R}$ where $(4 * x^2 - 7 * x - 2) \neq 0$); simplify it completely.

2. Consider the expression $\dfrac{(x^4 - 16)}{(4x^2 - 7x - 2)}$ when it exists (when the denominator is not zero (for all $x \in \mathbb{R}$ where $(4x^2 - 7x - 2) \neq 0$); simplify it completely.

3. Consider the expression $\dfrac{(x^3 + 125)}{(x^3 - 125)}$ when $x \neq 5$; simplify it completely.

4. Consider $y = \sin x$.
Find $\sin \dfrac{\pi}{4}$. Find $\sin \dfrac{\pi}{6}$. Find $\sin \dfrac{-\pi}{6}$. Find $\sin \dfrac{5\pi}{6}$. Find $\sin \dfrac{17\pi}{3}$.

5. Consider $y = \tan x$.
Find $\tan \dfrac{\pi}{4}$. Find $\tan \dfrac{\pi}{6}$. Find $\tan \dfrac{-\pi}{6}$. Find $\tan \dfrac{5\pi}{6}$. Find $\tan \dfrac{17\pi}{3}$.