

Calculus AB HW # 2

1.

Express the number

$$\frac{\frac{1}{2} + \frac{1}{3}}{\frac{1}{4} + \frac{1}{5}}$$

in simplest form (as an irreducible quotient of two integers).

2.

Express the number $\frac{1}{2} + \frac{1}{3+\frac{3}{4}}$ in simplest form (as an irreducible quotient of two integers).

3.

Express as an integer the value of

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

4.

By completing the square, the polynomial $x^2 - 6x + 4$ can be written in the form $(x - a)^2 + b$. Express a and b as integers.

5.

The expression

$$\frac{x + 1 - \frac{1}{x+1}}{\frac{1}{x+1}},$$

such that $x \neq -1$, can be written in the form $ax^2 + bx$. Express a and b as integers.

6.

The value of $\sec(\theta)$ is $\frac{5}{4}$ and the value of $\tan(\theta)$ is positive. Express the value of $\sin(\theta)$ in simplest form (as an irreducible quotient of two integers).

7.

Express as an integer the value of $\tan\left(\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)\right)$. Hint: Read this as “the tangent of the angle whose sine is $\frac{1}{\sqrt{2}}$.” Recall that the range of the inverse sine function is $[-\frac{\pi}{2}, \frac{\pi}{2}]$.

8.

For some real number θ , $0 \leq \theta \leq 2\pi$, it is known that $\sin(\theta) = \frac{\sqrt{3}}{2}$ and $\tan(\theta) = -\sqrt{3}$. The value of θ can be written in the form $\alpha\pi$. Express α as an irreducible quotient of two integers.

9.

Express as an integer the value of $(64)^{\frac{2}{3}}$.

10.

Express as an integer the value of $\log_2 8$.

11.

Express as an integer the value of $\ln 1$.

12.

Express as an integer the value of $\frac{1}{\log_8 2}$.

13.

Express as an integer the value of $3^{\log_3 6}$.

14.

Express as an integer the value of $e^{\ln 1}$.

15.

Express as an integer the value of $\sqrt[3]{(27)(125)}$.

16.

Express as an integer the value of $\log_{10} 2 + \log_{10} 50$.

17.

Express as an integer the value of $(\sqrt[3]{9})(3)^{-2/3}$.