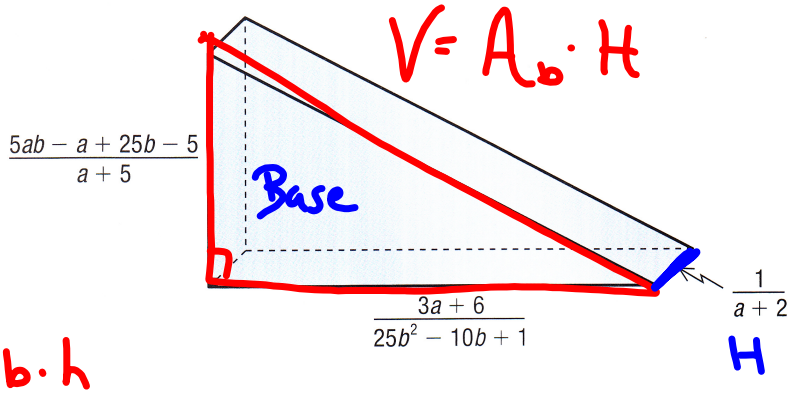
Determine the simplified algebraic expression that represents the volume of the adjacent right triangular-base prism.



Q

$V = A_b \cdot H$

Base = triangle

$A = \frac{b \cdot h}{2}$ or $\frac{1}{2} \cdot b \cdot h$

$A_b = \frac{3a+6}{25b^2-10b+1} \cdot \frac{5ab-a+25b-5}{a+5} \cdot \frac{1}{2}$

$5b - 1 = 0$
$+1 \quad +1$
$\frac{5b}{5} = \frac{1}{5}$
$b = \frac{1}{5}$

$= \frac{3(a+2)}{(5b-1)(5b-1)} \cdot \frac{(5b-1)(a+5)}{a+5} \cdot \frac{1}{2}$, $b \neq \frac{1}{5}$, $a \neq -5$

$= \frac{3(a+2)}{(5b-1)(5b-1)} \cdot \frac{(5b-1)(a+5)}{a+5} \cdot \frac{1}{2}$, $b \neq \frac{1}{5}$, $a \neq -5$

$= \frac{3(a+2)(5b-1)(a+5)}{(5b-1)(5b-1)(a+5)\cdot 2}$

$= \frac{3(a+2)}{2(5b-1)} = A_b$

② $V = A_b \cdot H$

$V = \frac{3(a+2)}{2(5b-1)} \cdot \frac{1}{a+2}$, $a \neq -2$

$V = \frac{3(a+2)}{2(5b-1)(a+2)}$

$V = \frac{3}{2(5b-1)}$, $b \neq \frac{1}{5}$; $a \neq \{-5, -2\}$

Work Book: Page 26 & 27

Questions 3 & 4

Text Book 1: Pages 158 - 159

Questions 13 & 16

3. Addition and Subtraction

Example: $\frac{1}{x+1}+\frac{2}{x-1}$

Factor wherever possible.

To add fractions, we need a common denominator.

When they don't have a common factor, the common denominator will be the product of the two denominators.

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

, $x \neq \{-1, 1\}$

Multiply, then add the fractions; be sure to state any restrictions.

$$\frac{x-1}{(x-1)(x+1)} + \frac{2x+2}{(x-1)(x+1)}$$

$$\frac{3x+1}{(x-1)(x+1)} \quad \text{or} \quad \frac{3x+1}{x^2-1} \qquad x \neq \{-1,1\}$$

Example: $\dfrac{x+3}{x-5} - \dfrac{x-1}{x+7}$

1: Factor

2: Common denominator

no common factor ⇒ cd is their product

$\left(\frac{x+7}{x+7}\right)\frac{(x+3)}{x-5} - \frac{(x-1)}{x+7}\left(\frac{x-5}{x-5}\right)$

3: State restrictions

$x \neq \{-7, 5\}$

4: Do the 2 multiplications, then subtract the numerators; be sure to subtract each term of the second numerator !

$\frac{(x^2+10x+21)}{(x+7)(x-5)} - \frac{(x^2-6x+5)}{(x+7)(x-5)}$

$\frac{\cancel{x^2}+10x+21-\cancel{x^2}+6x-5}{(x+7)(x-5)} = \frac{16x+16}{(x+7)(x-5)}$ or $\frac{16x+16}{x^2+2x-35}$