

$$L = l_1 + l_2$$

$$L = 264 + 123 \text{ cm}$$

$$L = 387 \text{ cm}$$

$$L = 387 \pm 0.99 \text{ cm}$$

$$\Delta L = \Delta l_1 + \Delta l_2$$

$$\Delta l_1 = 0.5 \text{ cm}$$

$$\Delta l_2 = 0.49 \text{ cm}$$

$$\Delta L = 0.99 \text{ cm}$$

$$V_{\text{diff}} = V_1 - V_2$$

$$V_{\text{diff}} = 250 - 238 \text{ ml}$$

$$\boxed{\pm 12 \text{ ml}}$$

$$\frac{\Delta V_{\text{diff}}}{V_{\text{diff}}} \times 100 = \frac{9,7}{12} \times 100$$

$$= 80\%$$

$$\Delta V_{\text{diff}} = \Delta V_1 + \Delta V_2$$

$$\Delta V_{\text{p}} = 250 \times 0,02$$

$$= 5 \text{ ml}$$

$$\Delta V_{\text{diff}} = 5 + 4,7 \text{ ml}$$

$$\Delta V_{\text{diff}} = \boxed{9,7 \text{ ml}}$$

$$W_{\text{kin}} = \frac{(mv^2)}{2}$$

$$\frac{(mvv)}{2}$$

$$\frac{\Delta W}{W} = \frac{\Delta m}{m} + \frac{\Delta v}{v} + \frac{\Delta v}{v}$$

$$\frac{\Delta W}{W} = 1,5 + 3,0 + 3,0$$

$$= 7,5 \%$$

$$\frac{1}{f} = \frac{1}{b} + \frac{1}{g}$$

$$\frac{0,15}{14,8} + \frac{0,14}{7,5}$$

$$b = 14,8 \pm 0,5 \text{ cm}$$

$$g = 7,5 \pm 0,4 \text{ cm}$$

$$f = \frac{(bg)}{(b+g)}$$

$$\frac{\Delta b}{b} + \frac{\Delta g}{g}$$

$$\frac{1}{b} = 0,0676$$

$$\frac{1}{g} = 0,1333$$

$$\frac{\Delta f}{f} = \frac{\Delta(bg)}{bg} + \frac{\Delta(b+g)}{(b+g)}$$

$$\frac{1}{0,2009} = f$$

$$\frac{\Delta f}{f} = 0,087 + 0,04$$

$$\frac{\Delta f}{f} = 0,127 \times 100$$

$$f = 4,98 \text{ cm}$$

$$\frac{\Delta f}{f} = 12,7 \%$$

$$\frac{(\Delta b + \Delta g)}{(b+g)} = \frac{(0,5 + 0,4)}{14,8 + 7,5} = 0,04$$

$$f = 4,98 \text{ cm} \pm 12,7 \%$$

$$a^0 = \underline{1} \quad a^{-r} = \frac{1}{a^r}$$

$$a^{r/s} = \sqrt[s]{a^r} = \left(\sqrt[s]{a}\right)^r$$

$$\boxed{a^{r+s} = a^r \times a^s}$$

$$a^{r-s} = a^r \div a^s$$

$$\left(\frac{a}{b}\right)^r = a^r \div b^r$$

$$(a^r)^s = a^{r \times s}$$

$$1) 3^3 = 27$$

$$3) 27^{1/3} = 3$$

$$5) 16^0 = \underline{1}$$

$$2) 4^{-2} = \frac{1}{16} = 0,0625$$

$$4) 4^{-1/2} = \frac{1}{2}$$

6)

$$a^{r+s} = a^r \times a^s$$

$$3,29^{\textcircled{6}} \times 3,29^{\textcircled{-4}} \times 3,29^{\textcircled{-3}} \times 3,29^{\textcircled{1}}$$

$$6 + -4 + -3 + 1 = 0$$

$$3,29^0 = 1$$

$$\log_b(xy) = \log_b x + \log_b y$$

$$\log_b\left(\frac{x}{y}\right) = \log_b x - \log_b y$$

$$\log_b x^p = p \log_b x$$

$$\log_b(\sqrt[p]{x}) = \frac{\log_b x}{p}$$

$$4) \log_{10}(\sqrt{1000})$$

$$\frac{1}{2} \log_{10} 1000 = \frac{3}{2} = 1,5$$

$$1) \log_3(9 \times 27)$$

$$= \log_3 9 + \log_3 27$$

2 + 3  
= 5

$$2) \log_2\left(\frac{64}{4}\right)$$

$$\log_2 64 - \log_2 4 = 6 - 2 = 4$$

$$3) \log_2(2^6)$$

$$= 6 \log_2 2 = 6 \times 1 = 6$$

$$\sqrt{1000} = 1000^{1/2}$$