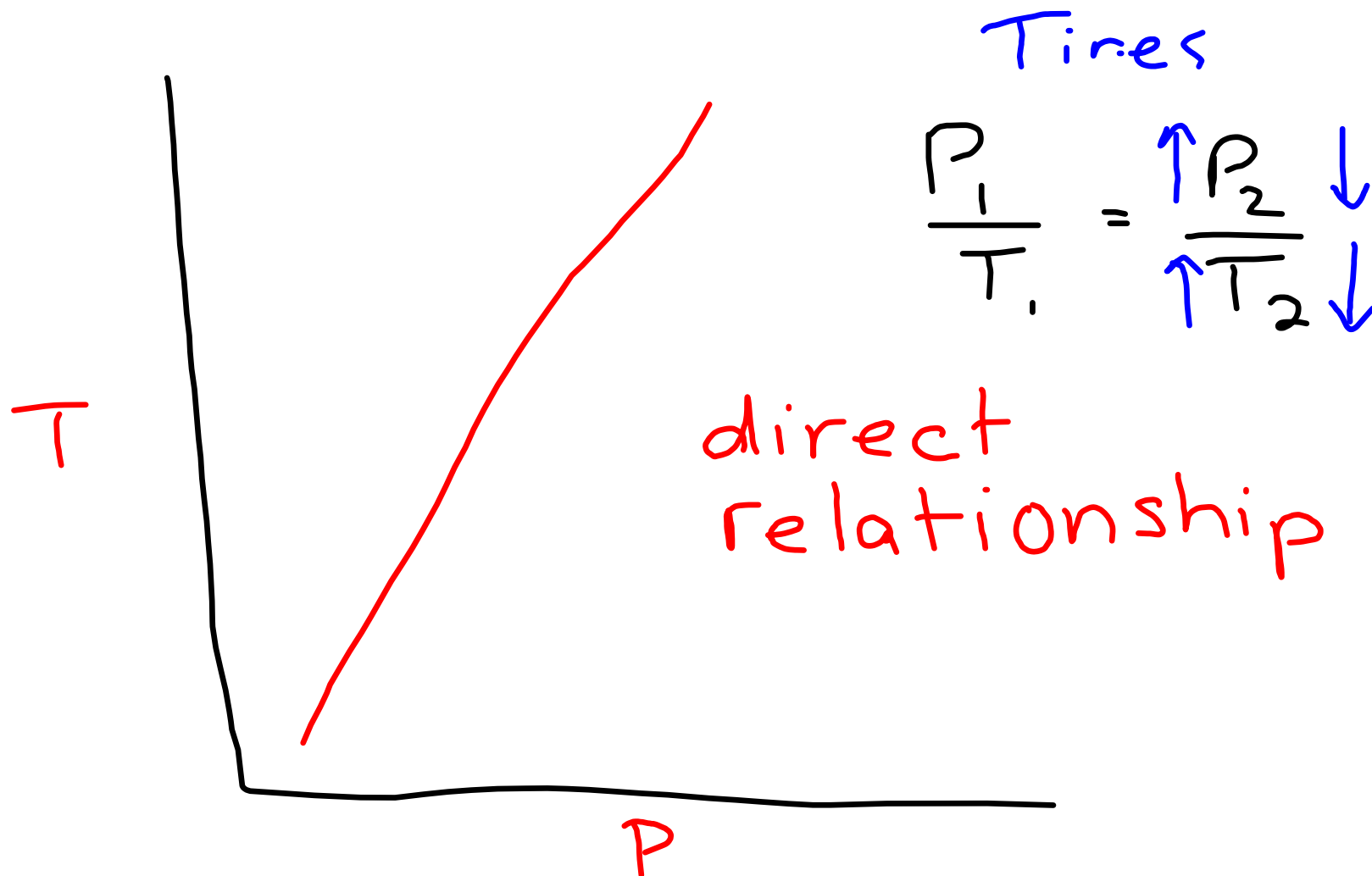


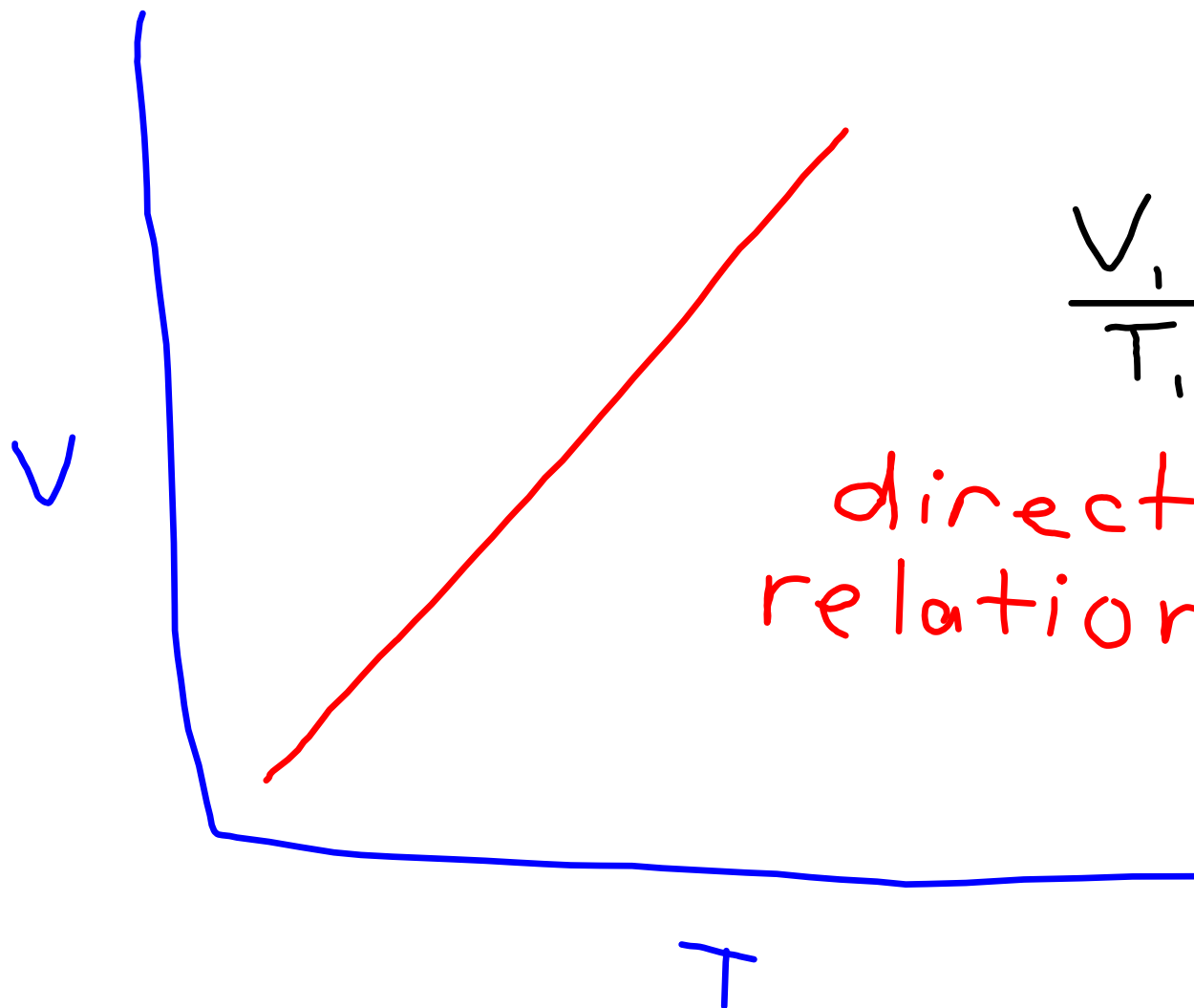
/ Press (atm, psi, torr ...)

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

volume (L, mL)

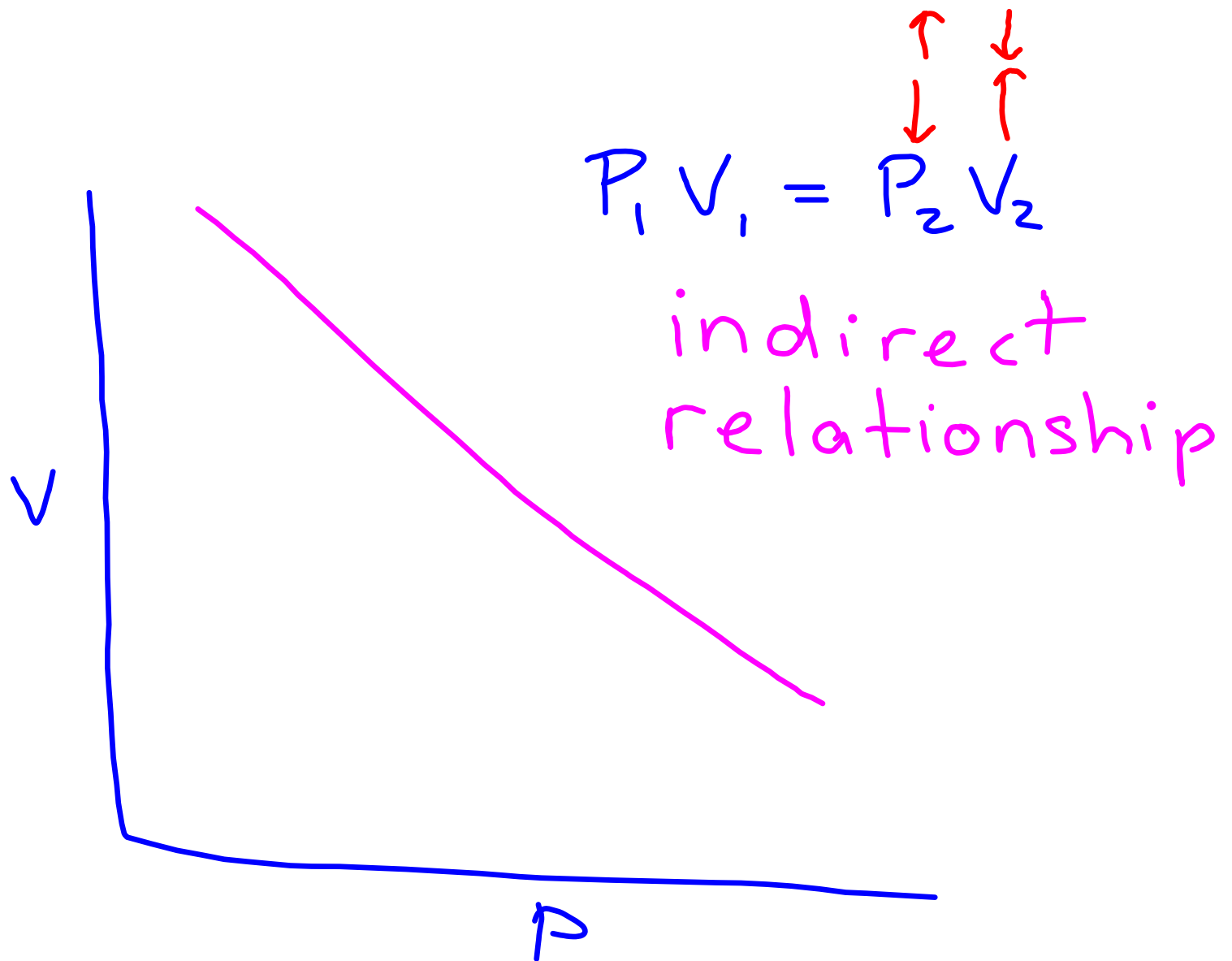
temp (K) $K \Leftarrow ^\circ C + 273$





$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

direct
relationship



$$\begin{aligned}
 8. \quad V_1 &= 4.4 \text{ L} & V_2 &= 5.1 \text{ L} \\
 P_1 &= \text{const.} & P_2 &= \text{const.} \\
 T_1 &= 307.2 \text{ K} & T_2 &= x \text{ } 356.07
 \end{aligned}$$

$$34.2^\circ\text{C} + 273 =$$

$$\frac{4.4}{307.2} = \frac{5.1}{x}$$

$$4.4(x) = (5.1)(307.2)$$

$$\frac{4.4(x)}{4.4} = \frac{1566.72}{4.4}$$

$$x = 356.072 \text{ K}$$

$$356.072 = ^\circ\text{C} + 273$$

$$83.072^\circ\text{C}$$

$$83^\circ\text{C}$$

$$\begin{array}{ll}
 V_1 = 4.4 \text{ L} & V_2 = 5.1 \text{ L} \\
 P_1 = \text{const.} & P_2 = \text{const.} \\
 T_1 = 307.2 \text{ K} & T_2 = \times 356.07
 \end{array}$$

$$\frac{4.4}{307.2} = \frac{5.1 \uparrow}{356.07 \uparrow}$$

$$\begin{array}{ll}
 6. & V_1 = 532 \text{ mL} & V_2 = 876 \text{ mL} \\
 & P_1 = 0.943 \text{ atm} & P_2 = x \\
 & T_1 = \text{const.} & T_2 = \text{const.}
 \end{array}$$

$$\begin{array}{rcl}
 (.943)(532) & = & x(876) \\
 \hline
 501.676 & = & \cancel{x(876)} \\
 & & \cancel{876}
 \end{array}$$

$$x = .572689 \text{ atm}$$

$$x = .573 \text{ atm}$$

$$5.73 \times 10^{-1} \text{ atm}$$

$$(0.943)(532) = (.573)(876)$$

Diagram illustrating a multiplication operation with annotations:

- The first factor is (0.943) .
- The second factor is (532) .
- The result is $(.573)(876)$.
- An arrow points down to the digit 7 in the decimal part of the result $(.573)$.
- An arrow points up to the digit 8 in the integer part of the result (876) .

4.

$$P_1 = 1.3 \text{ atm}$$

$$P_2 = 2.5 \text{ atm}$$

$$V_1 = 330 \text{ mL}$$

$$V_2 = 250 \text{ mL}$$

$$T_1 = 298.6 \text{ K}$$

$$T_2 = x$$

$$25.6 + 273$$

$$\frac{(1.3)(330)}{298.6} = \frac{(2.5)(250)}{x}$$

$$\frac{1.4367}{1} = \frac{625}{x}$$

$$\frac{1.4367(x)}{1.4367} = \frac{625}{1.4367}$$

$$x = 435.0247 \text{ K}$$

$$435.0247 = 273 + ^\circ\text{C}$$

$$162.0247 ^\circ\text{C}$$

$$160 ^\circ\text{C}$$

$$1.6 \times 10^2 ^\circ\text{C}$$

3. total press. atm

30.0 psi N_2

350,000 Pa He

995 torr Ar

$$\frac{30.0 \text{ psi} \times 1 \text{ atm}}{14.7 \text{ psi}} = 2.0408 \text{ atm}$$

N_2

$$\frac{350,000 \text{ Pa} \times 1 \text{ atm}}{101,325 \text{ Pa}} = 3.4542 \text{ atm}$$

He

$$\frac{995 \text{ torr} \times 1 \text{ atm}}{760 \text{ torr}} = 1.3092 \text{ atm}$$

Ar

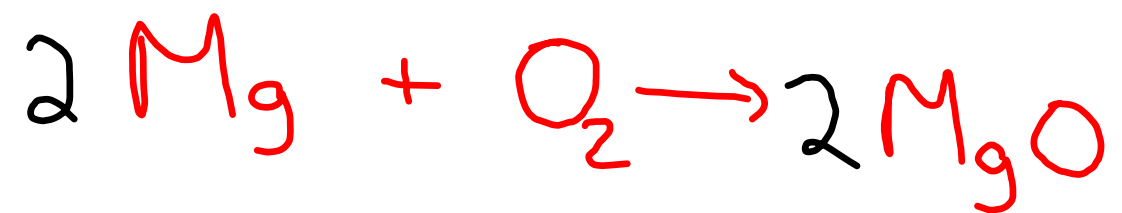
$$6.8 \text{ atm}$$

Quiz Gases

①
②

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

1 of them
will be
constant

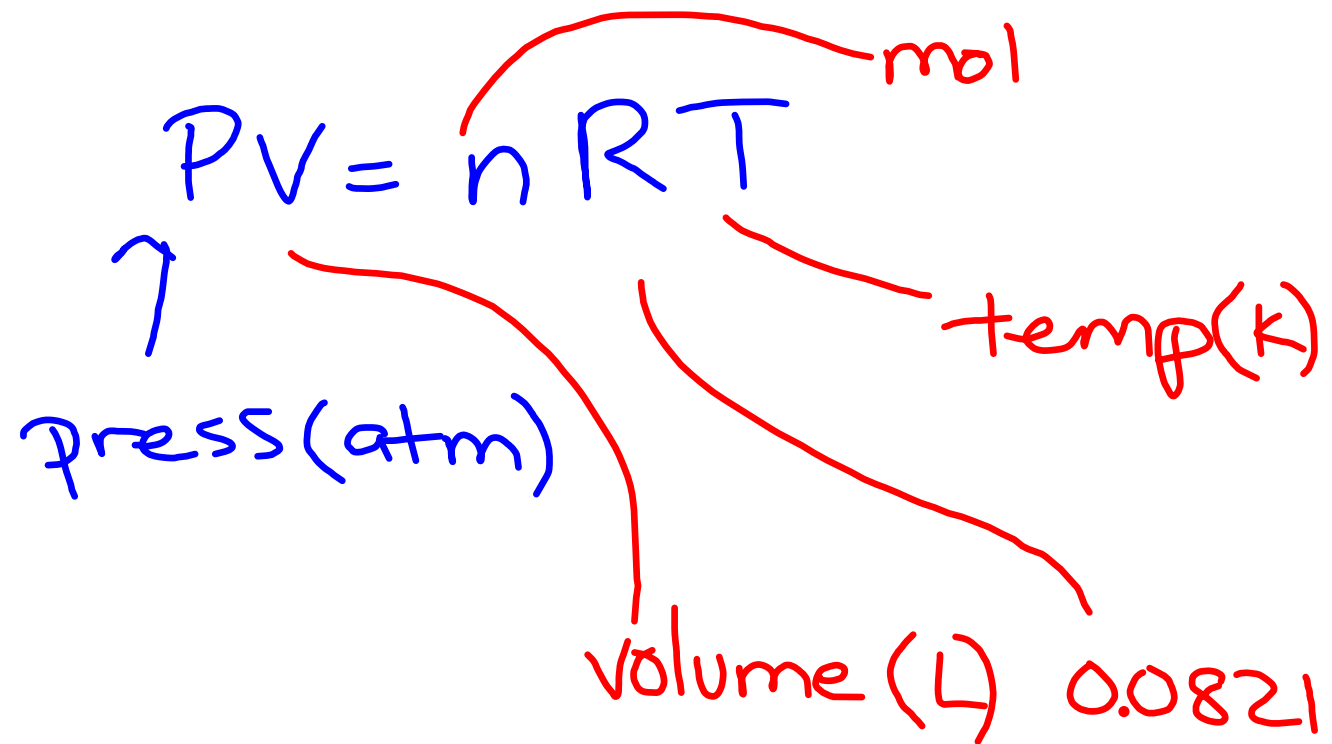


$$PV = nRT$$

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

two Press
two volumes
two temp

P - corr, mmHg
atm, psi...
V L, mL
T K



$$(atm)(L) = \cancel{\text{mol}} \left(\frac{L \cdot atm}{\cancel{\text{mol}} \cdot \cancel{K}} \right) (\cancel{K})$$

① ? mol 4.00L 23.3°C
5324 mmHg

$$\frac{5324 \text{ mmHg} \times 1 \text{ atm}}{760 \text{ mmHg}} = 7.00526$$

$$23.3^\circ\text{C} + 273 = 296.3 \text{ K}$$

$$(7.00526)(4.00) = x(0.0821)(296.3)$$

$$\frac{28.02104}{24.32623} = x \frac{24.32623}{24.32623}$$

$$x = 1.15188420 \text{ mol}$$

$$x = 1.15 \text{ mol}$$

$$2 \quad ?^{\circ}\text{C} \quad 2.5\text{mol} \quad 12.22\text{L}$$

$$450\text{ mmHg}$$

$$\frac{450\text{ mmHg} \times 1\text{atm}}{760\text{ mmHg}} = .59210\text{atm}$$

$$(.59210)(12.22) = (2.5)(.0821)(K)$$

$$\frac{7.235462}{.20525} = \frac{.20525(X)}{.20525}$$

$$35.2519\text{K}$$

$$35.2519 = ^{\circ}\text{C} + 273$$

$$-237.748^{\circ}\text{C}$$

$$-2.4 \times 10^2^{\circ}\text{C}$$

liquid N_2

$-196^\circ C$

5. $?_v$ 648 K 375°C 0.700 mol

225 mm Hg

$.29605\text{ atm}$

$$(29605)(x) = (0.700)(.0821)(648)$$

$$\begin{array}{r} \cancel{(.29605)}(x) = 37.24056 \\ \hline .29605 \end{array} \quad \begin{array}{r} \hline .29605 \end{array}$$

1. + W 7, 9