Per Cent Problems

all percents must be changed to decimals to work problems!

Remember: 5% = .05 , 50% = .50

0.5% = .005 500% = 5

Per Cent Change (Percent Increase or Decrease)

$$P = \frac{\text{difference in values}}{\text{original value}} \cdot 100\%$$

What was the percent decrease in the bird population of a park if there were 375 birds in 2005 and 330 birds in 2010?

$$P = \frac{375-330}{375} \cdot 100\%$$

$$P = \frac{45}{375} \cdot 100\%$$

$$P = \frac{3}{25} \cdot 100\%$$

$$P = .12 \cdot 100\%$$

$$P = 12\%$$

Next = % Add ons: Taxes, tips, price increases

% decrease: discounts, deductions

Per Cent: Add-ons, Increases

Purchases: TAXES, TIPS, PRICE INCREASES,

FINAL AMOUNT = ORIGINAL + INCREASE

PAID AM'T = ORIGINAL PRICE + TAX

PAID AM'T = ORIGINAL PRICE + (ORIGINAL PRICE X TAX RATE)

JEANS cost $65 you pay? 6½% tax

$P = \$65 + \$65(.065)$

$P = \$65 + 4.23$

$P = \$69.23$

TAX ALWAYS ROUNDS UP!

Use this PATTERN or set-up for tips & INCREASES

Per Cent Discount (decrease)

SALE PRICE = ORIGINAL PRICE − DISCOUNT

SALE PRICE = ORIGINAL PRICE − (ORIGINAL PRICE X % DISCOUNT)

$65 JEANS @ 25% discount

$P = \$65 - \$65(.25)$

$P = \$65 - \$16.25$

$P = \$48.75$

To find ORIGINAL PRICE when discount price & RATE are given:

Use the SAME PATTERN.

MICROWAVE is ON SALE for $231 After A 30% discount. Find the ORIGINAL price.

SALE PRICE = ORIGINAL − ORIGINAL • %discount

$231 = X − X(.30)

$231 = 1X − .3X

$231 = 1.0X − .3X

$\frac{231}{.7} = \frac{.7X}{.7}$

$330 = X

330.
.7) 231.00
21
21
21
0
0

Interest

I = P·R·T I = interest in DOLLARS. P = PRINCIPAL, P = money invested or borrowed. R = Rate of Interest, % T = Time in Years. Fill in the numbers given and solve for the missing variable.

A man received $720 Interest after 4 years at 3%. How much was invested?

$\frac{\$720}{I} = \frac{X}{P} \cdot \frac{(.03)}{R} \cdot \frac{4}{T} \rightarrow \frac{\$720}{.12} = \frac{.12X}{.12}$

$6000 = X

for total in an account (A)

A = Principal + Interest or

A = P + PRT !

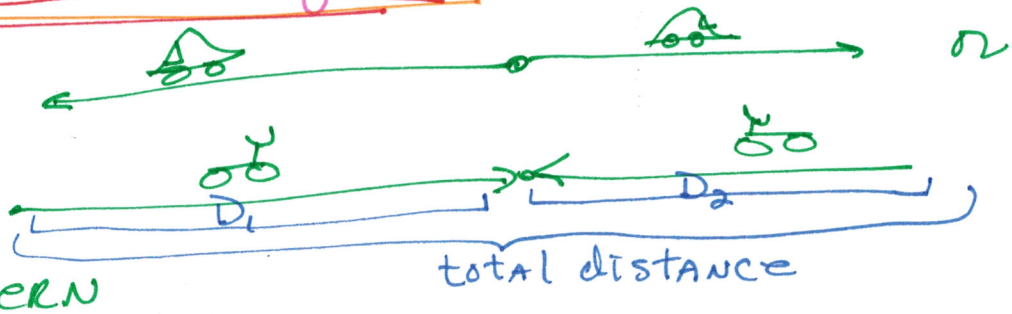
Rate · Time = Distance R·T=D

w/ 2 vehicles

(planes, trains, automobiles, etc)!

vehicles going away from or coming towards each other in a "straight line".

DRAW A diAGRAM !



PATTERN

Total Distance = Distance Vehicle #1 + Distance Vehicle #2

Total Distance = $(R \cdot T)_{\#1} + (R \cdot T)_{\#2}$

Rate or Time must be related to each other

1 & 2 1 & 2

$D_t = RT + RT$ (at the same time)

2 planes leave Chicago. One goes East at 350 mph & the other goes West at 475 mph How long until the planes are 2475 miles apart.

$2475 = 350T + 475T$

$\frac{2475}{825} = \frac{825T}{825}$

3 hrs $= T$