

Name KEY Date: _____ Period: _____

Advanced Algebra II Honors: PITFALLS IN PROBLEM SOLVING!!

Solve the following problems. Show all work. Define your variables. Remember this is **PITFALLS** in problem solving which means you may not get an answer you expect.

1. The round-trip fare from Beachview to Warwick's Island is \$39 for adults, \$19 for children 2 through 12, and \$5 for infants under 2. On Sunday there were 49 passengers who paid a total fare of \$1475. If there were twice as many adult passengers as children, how many infants were there?

let $C = \#$ children $19C = \text{cost of children}$
 $2C = \#$ adult $39(2C) = \text{cost of adults}$
 $49 - 3C = \#$ infants $5(49 - 3C) = \text{cost of infants}$

EQ: $19C + 39(2C) + 5(49 - 3C) = 1475$
 $82C + 245 = 1475$
 $C = 15$

{ 4 infants }

2. A total of \$458 was collected for admission from 132 people who attended a show. If adults paid \$4.00 each and children paid \$2.50 each, how many children attended the show?



let $C = \#$ of children
 $132 - C = \#$ of adults

EQ $4(132 - C) + 2.50C = 458$
 $C = 46.\overline{66}$

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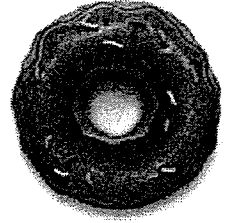
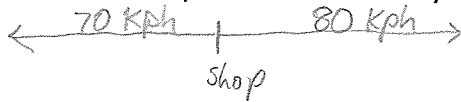
3. Find three consecutive even integers so that the second times the third is 13 more than 10 times the first.

let $x = 1^{\text{st}}$ even integer
 $x + 2 = 2^{\text{nd}}$ " "
 $x + 4 = 3^{\text{rd}}$ " "

EQ $(x+2)(x+4) = 13 + 10x$
 $x^2 + 6x + 8 = 13 + 10x$
 $x^2 - 4x - 5 = 0$

$(x-5)(x+1) = 0$
 $x = 5, x = -1$
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4. Two cars left Tim Horton's Doughnut Shop in Brockville, Ontario and traveled in opposite directions. The faster of the two cars traveled 80 km/hr. The slower car traveled at 70 km/h. After how many hours were they 375 km apart?



let $h = \#$ of hours each traveled

$80h =$ distance faster car traveled in h hours

$70h =$ distance slower car traveled in h hours

EQ: $80h + 70h = 375$ $h = 2\frac{1}{2}$ S: $\{2\frac{1}{2} \text{ hrs.}\}$
 $150h = 375$

5. Mrs. Barry is 20 years older than Mrs. Cook. Sixteen years ago, Mrs. Barry was 3 times as old as Mrs. Cook was then. Find their present ages.

<u>NOW</u>	<u>16 years ago</u>
$C =$ Mrs. Cook's age	$C - 16 =$ Mrs. Cook's
$C + 20 =$ Mrs. B's age	$C + 20 - 16 =$ Mrs. B's

EQ: $3(C - 16) = C + 20 - 16$
 $3C - 48 = C + 4$
 $2C = 52$
 $C = 26$

Present ages

{ Mrs. Cook is 26.
Mrs. Barry is 46. }

Answers:

- 1. 4 infants
- 2. 46 children (not possible)
- 3. $\{-1, 5\}$ not even! (not possible)
- 4. ~~7~~^{2.5} hours

→ Check = 16 years ago

Cook was 10
 Barry was 30.
 This checks out - Barry was 3X Cook's age.