Algebra II

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2)	Alicia: $360; Jim $ 240
4)	165 slices
6)	7cm
8)	112°
10	15mi
12	$900 at 5%; $2100 at 8%
14	18 quarter
16	∅
18	∅
20	1 hr 20min
22	peanuts: 11.25 lbs; cashews 8.75 lbs

2) Jim's weekly pay is two thirds of Alicia's. Together they earn $600 per week. What is each person's weekly pay?

Let x = Alicia's pay

$\frac{2}{3}x$ = Jim's

$3\left(x+\frac{2}{3}x=600\right)$

$3x+2x=1800$

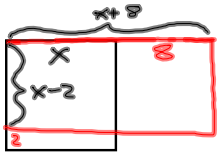
4) At the homecoming football game, the Senior Class officers sold slices of pizza for $0.75 each and hamburgers for $1.35 each. They sold 40 more silcies of pizza than hamburgers, and sales totaled $292.50. How many slices of pizza did they sell?

	n	· p	= total
pizza	$x+40$	.75	$.75(x+40)$
burgers	x	1.35	$1.35x$
			292.50

$.75(x+40)+1.35x=292.50$

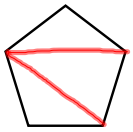
6) If one side of a square is increased by 8 cm and an adjacent side decreased by 2 cm, a rectangle is formed whose perimeter is 40 cm. Find the length of a side of the square.

Let x = side of square



$40=(x+8)+(x-2)+(x+8)+(x-2)$

8) The degree measures of the angles of a pentagon are consecutive even integers. Find the measure of the largest angle.



Let x = the smallest

$x+2 = 2^{nd}$

$x+4 = 3^{rd}$

$x+6 = 4^{th}$

$x+8 = 5^{th}$

$540 = x + (x+2) + (x+4) + (x+6) + (x+8)$

10) In a walkathon to raise money for a charity, Elisa walked a certain distance at 5 mi/h and then jogged twice that distance at 8 mi/h. Her total time walking and jogging was 2 h and 15 min. How many miles long was the walkathon? $d = rt$ $t = \frac{d}{r}$

walk: $r = 5$, $d = x$, $t = \frac{x}{5}$

jog: $r = 8$, $d = 2x$, $t = \frac{2x}{8} = \frac{x}{4}$

$20\left(\frac{x}{5} + \frac{x}{4} = \frac{9}{4}\right)$

2 hr 15 min $= 2\frac{1}{4} = \frac{9}{4}$

12) Larry has an annual (1 yr) return of \$213 from \$3000 invested at simple interest, some at 5% and the rest at 8%. How much is invested at each rate?

P	r	t	= I
x	.05	1	$.05x$
$3000-x$	.08	1	$.08(3000-x)$
			213

$.05x + .08(3000-x) = 213$

14) A collection of 30 coins worth \$5.50 consists of nickels, dimes, and quarters. There are twice as many dimes as nickels. How many quarters are there?

	n	· v	= total
nickels	x (4)	5	$5x$
dimes	$2x$ (8)	10	$+20x$
quarters	$30-x-2x$ (18)	25	$+25(30-3x)$
			550

$5x + 20x + 25(30-3x) = 550$

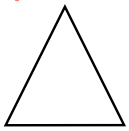
$25x + 750 - 75x = 550$

$-50x = -200$

$x = 4$

16) A triangle has perimeter 29 cm. The sides have lengths, in centimeters, that are consecutive odd integers. What is the length of the longest side?

no fractions



Let x = smallest

$x+2$ = 2nd

$x+4$ = 3rd

$x+(x+2)+(x+4)=29$

$3x+6=29$

$3x=23$

$x=7\frac{2}{3}$

$\varnothing$

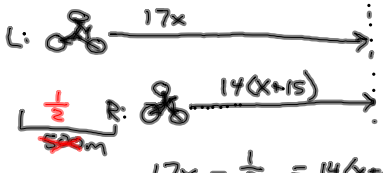
18) A school cafeteria sells milk at 25 cents per carton and salads at 45 cents each. One week the total sales for these items were $132.50. How many salads were sold that week?

	n	· p	= total
milk	x	25	
salad	need this	45	
		+	13250

$\varnothing$

20) In a bicycle race, Lionel gives Robert a 500 m advantage. Also, Lionel agrees to start 15 min after Robert. If Lionel bikes at 17 km/h and Robert at 14 km/h, how long will it take Lionel after he starts biking to overtake Robert?

	r	t	= d
Lionel	17	x	17x
Robert	14	$x+15\frac{1}{4}$	$14(x+\frac{1}{4})$



$17x-\frac{1}{2}=14(x+\frac{1}{4})$

22) A grocer wants to mix peanuts and cashews to produce 20 lb of mixed nuts worth $6.20/lb. How many pounds of each kind of nut should she use if peanuts cost $4.80/lb and cashews cost $8/lb.

$4.8x+8(20-x)=20(6.2)$