

General Word Problems

1. $A = 2B$

$$C = 30 + A$$

$$A + B + C = 720$$

$$2B + B + 30 + A = 720$$

$$2B + B + 30 + 2B = 720$$

$$5B + 30 = 720$$

$$5B = 690$$

$$B = 138 \quad A = 138 \cdot 2 = 276$$

$$A = 276 \text{ lbs}$$

$$B = 138 \text{ lbs}$$

$$C = 306 \text{ lbs}$$

$$C = 30 + 276 = 306$$

2. $2a + 3c = 79.5$

$$a = 6 + c$$

$$2(6 + c) + 3c = 79.5$$

$$12 + 2c + 3c = 79.5$$

$$5c = 67.5$$

$$c = \$13.50$$

$$a = 6 + 13.5 = \$19.50$$

$$\text{Adult } \$19.50$$

$$\text{Child } \$13.50$$

3. $A = \frac{1}{2}bh$

$$45000 = \frac{1}{2}(180)h$$

$$45000 = 90h$$

$$500 = h$$

500 meters

4. $l = 19 + w$

$$2l + 2w = 46$$

$$2(19 + w) + 2w = 46$$

$$38 + 2w + 2w = 46$$

$$38 + 4w = 46$$

$$4w = 8$$

$$w = 2$$

$$l = 19 + 2 = 21$$

length 21 feet

width 2 feet

5. X - biggest angle
 Y - medium angle
 Z - small angle

$$X = 3Z$$

$$Y = 2Z$$

$$X + Y + Z = 180$$

$$3Z + 2Z + Z = 180$$

$$6Z = 180$$

$$Z = 30$$

NOTES:

Midterm

Block 3 - $X = 3(30) = 90^\circ$

Block 4 -

Mixture Problems

1.	20%	6	1.2
	80%	X	.8X
	75%	6+X	4.5+.75X

$$1.2 + .8X = 4.5 + .75X$$

$$1.2 + .05X = 4.5$$

$$.05X = 3.3$$

$$X = 66 \quad \boxed{66 \text{ L of } 80\% \text{ juice}}$$

2.	35%	200	70
	X	300	300X
	20%	500	100

$$70 + 300X = 100$$

$$300X = 30$$

$$X = .1$$

$$\boxed{10\% \text{ juice}}$$

3.	C	2	X	2X
	A	5	150-X	750-5X
	Mix	3	150	450

$$2X + 750 - 5X = 450$$

$$-3X = -300$$

$$X = 100$$

$\boxed{100 \text{ lbs of cashews}}$
 $\boxed{50 \text{ lbs of almonds}}$

4.	L	.9	X	.9X
	C	.5	16	8
	Mix	.65	16+X	10.4+.65X

$$.9X + 8 = 10.4 + .65X$$

$$.25X = 2.4$$

$$X = 9.6$$

$\boxed{9.6 \text{ lbs of limas}}$

Consecutive Integer Problems

1. $x + x + 2 + x + 4 = 120$
 $3x + 6 = 120$
 $3x = 114$
 $x = 38$
38, 40, 42

2. $5x = 3(x + 2)$
 $5x = 3x + 6$
 $2x = 6$
 $x = 3$
3, 5

3. $x + x + 2 + x + 4 = 129$
 $3x + 6 = 129$
 $3x = 123$
 $x = 41$
41, 43, 45

4. $3x = 18 + x + 4$
 $3x = 22 + x$
 $2x = 22$
 $x = 11$
11, 13, 15

5. $5(x + 2) = 1 + 8x$
 $5x + 10 = 1 + 8x$
 $10 = 1 + 3x$
 $9 = 3x$
 $3 = x$
3, 5

6. $\frac{1}{2}x = 2 + x + 2$
 $\frac{1}{2}x = 4 + x$
 $-4 = \frac{1}{2}x$
 $-8 = x$
-8, -6

Age Problems

1. $9K = K + 56$
 $8K = 56$
 $K = 7$

Kevin is 7 years old

2. $x + 10 = 3x$
 $10 = 2x$
 $5 = x$

Orlando is 5 years old

3. $F = 5J$
 $J = 2A$
 $F + 2 + J + 2 + A + 2 = 58$

$5J + 2 + J + 2 + \frac{1}{2}J + 2 = 58$
 $6.5J + 6 = 58$
 $6.5J = 52$
 $J = 8$

John is 8 years old

$$4. \quad B = 8 + S$$

$$B - 10 = 2(S - 10)$$

$$8 + S - 10 = 2S - 20$$

$$-2 + S = 2S - 20$$

$$18 = S$$

Sarah is 18 years old
Ben is 26 years old

$$5. \quad A = 4P$$

$$A - 6 = 6(P - 6)$$

$$4P - 6 = 6P - 36$$

$$4P + 30 = 6P$$

$$30 = 2P$$

$$15 = P$$

Pete is 15 years old
Arun is 60 years old

Work Problems

$$1. \quad \frac{3}{1} + \frac{8}{1} = \frac{22}{x}$$

$$\frac{11}{1} = \frac{22}{x}$$

$$22 = 11x$$

$$2 = x$$

2 hours

$$2. \quad \frac{1}{12} + \frac{1}{8} = \frac{1}{x}$$

$$\frac{2}{24} + \frac{3}{24} = \frac{1}{x}$$

$$\frac{5}{24} = \frac{1}{x}$$

$$24 = 5x$$

x = 4.8 hours

$$3. \quad \frac{1}{4} + \frac{1}{2} = \frac{1}{x}$$

$$\frac{1}{4} + \frac{2}{4} = \frac{1}{x}$$

$$\frac{3}{4} = \frac{1}{x}$$

$$4 = 3x$$

$$1\frac{1}{3} = x \quad \boxed{1\frac{1}{3} \text{ hours}}$$

Motion Problems

	r	t	d	
1. Plane 1	x	3	3x	$3x + 240 + 3x = 2940$
Plane 2	$80 + x$	3	$240 + 3x$	$60x + 240 = 2940$
				$60x = 2700$
				$x = 450$

450 mph and 530 mph

	r	t	d	
2. train 1	60	x	60x	$60x = 96x - 96$
train 2	96	$x - 1$	$96x - 96$	$96 = 36x$
				$2\frac{2}{3} = x$

1 hour 40 minutes

	r	t	d	
3. Jane	x	3	3x	$3x + 45 + 3x = 225$
Peter	$15 + x$	3	$45 + 3x$	$60x + 45 = 225$
				$60x = 180$
				$x = 30$

Jane 30 mph
Peter 45 mph

4.

	r	t	d
Monica	60	x	60x
Phoebe	80	x-2	80x-160

$60x = 80x - 160$
 $-20x = -160$
 $x = 8$

It will take Phoebe 6 hours

	r	t	d
Plane 1	300	x	300x
Plane 2	400	x-1	400x-400

$300x = 400x - 400$
 $-100x = -400$
 $x = 4$

1200 mph and 230 mph

	r	t	d
Train 1	60	x	60x
Train 2	80	x-1	80x-80

$60x = 80x - 80$
 $-20x = -80$
 $x = 4$

11 hours 40 minutes

	r	t	d
Plane 1	300	x	300x
Plane 2	400	x-1	400x-400

$300x = 400x - 400$
 $-100x = -400$
 $x = 4$

1200 mph and 230 mph