

Unit One: Linear Inequalities

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(a)  $4x - 7y = 6$   
 $2x + y = 12$

①  $4x - 7y = 6$   
 ②  $\times 7$   $14x + 7y = 84$

D+②  $18x = 90$   
 $x = 5$

sub  $4(5) - 7y = 6$   
 $20 - 7y = 6$   
 $-7y = -14$   
 $y = 2$

$(5, 2)$

(b)  $6x - 5y = -3$   
 $5x + 3y = 19$

①  $\times 3$   $18x - 15y = -9$   
 ②  $\times 5$   $25x + 15y = 95$

①+②  $43x = 86$   
 $x = 2$

sub  $x = 2$   
 $5(2) + 3y = 19$   
 $10 + 3y = 19$   
 $3y = 9$   
 $y = 3$

$(2, 3)$

(c)  $3(x+4) - 4(y+1) = 7$   
 $x - 9 = y$

①  $3x + 12 - 4y - 4 = 7$   
 ①  $3x - 4y = -1$   
 ②  $x - y = 9$

①  $3x - 4y = -1$   
 ②  $\times 3$   $3x - 3y = 27$

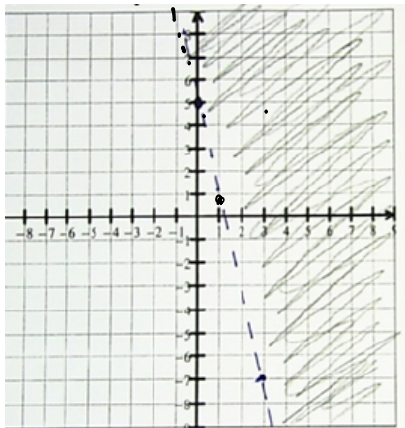
①-②  $-y = -28$   
 $y = 28$

sub ②  $x - 28 = 9$   
 $x = 37$

$(37, 28)$

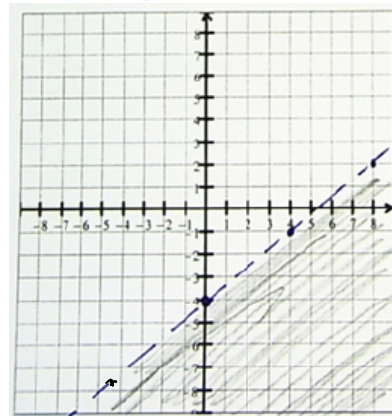
2. Graph the inequality:

a.  $y > -4x + 5$



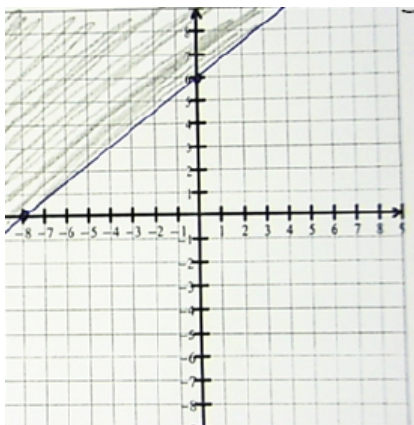
x	y
1	4
0	5
3	7
-1	9

c.  $y < \frac{3}{4}x - 4$



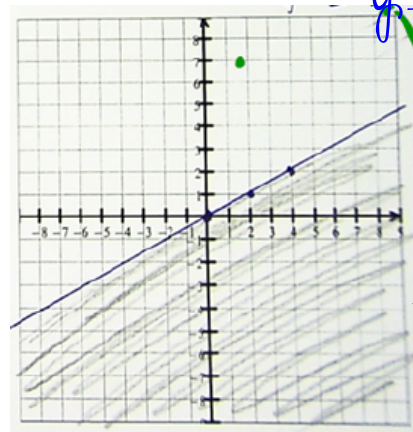
x	y
-4	-7
0	-4
4	-1
8	2

b.  $3x - 4y \leq -24$



- $(0, 6)$
- $(-8, 0)$

d.  $x \geq 2y$



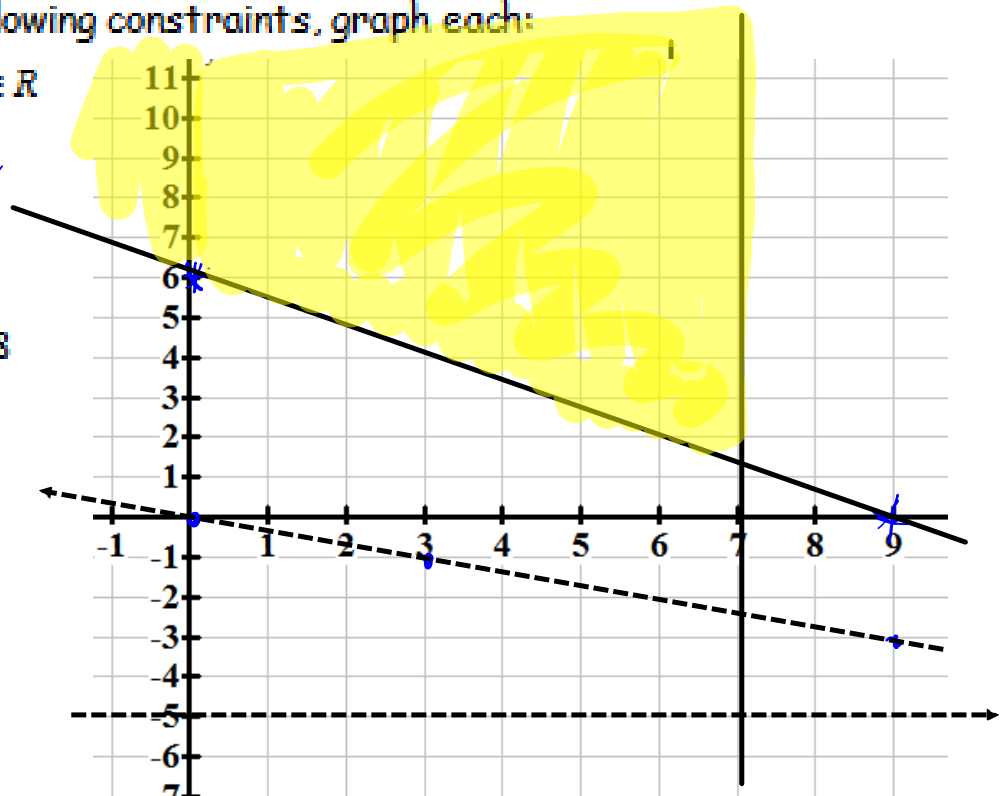
Rearrange

$y \leq \frac{x}{2}$

x	y
6	3
4	2
0	0
-2	-1

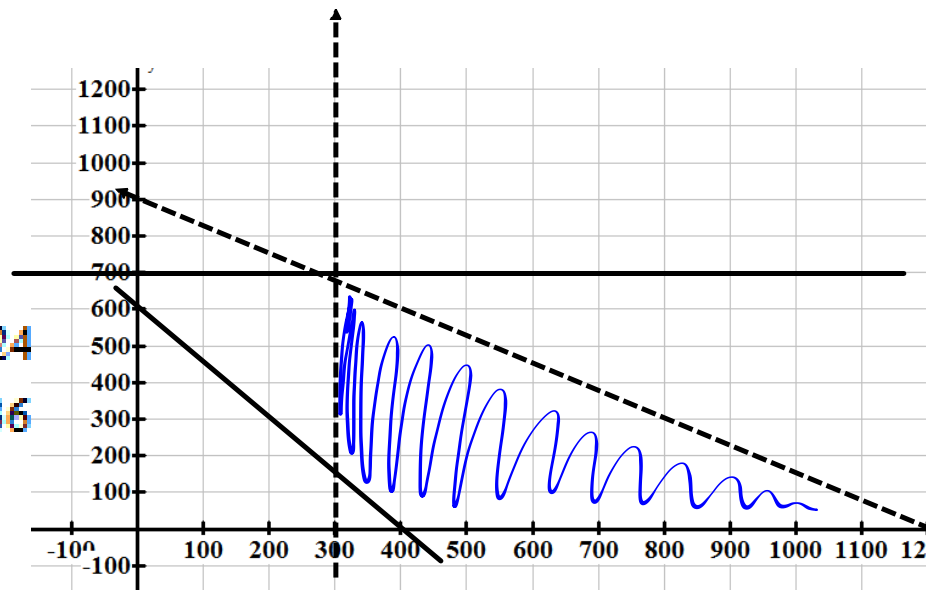
3. Given the following constraints, graph each:

Q.  $x \in \mathbb{R}, y \in \mathbb{R}$   
 $x \leq 7$  ✓  
 $y > -5$  ✓  
 $y > -\frac{1}{3}x$   
 $2x + 3y \geq 18$



3b.

$$\begin{aligned}x &\geq 0 \\y &\geq 0 \\x &> 300 \\y &\leq 700 \\6x + 4y &\geq 24 \\3x + 4y &< 36\end{aligned}$$



4. In order to ensure optimal health for your puppy a lab technician recommends to feed the pup a daily diet containing a minimum of 24 grams (g) of fat, 36 g of carbohydrates, and 4 g of protein.
- The pup should be fed no more than five ounces of food a day.
- Rather than order food that is custom-blended, it is cheaper to order Food A and Food B, and blend them for an optimal mix.
- Food X contains 6 g of fat, 12 g of carbohydrates, and 2 g of protein per ounce, and costs \$0.20 per ounce.
- Food Y contains 12 g of fat, 12 g of carbohydrates, and 1 g of protein per ounce, at a cost of \$0.30 per ounce.
- What is the optimal blend?

### Constraints

$$\text{fat: } 6x + 12y \geq 24$$

$$\text{carbs: } 12x + 12y \geq 36$$

$$\text{protein: } 2x + 1y \geq 4$$

the maximum weight of the food is five ounces, so:  $x + y \leq 5$

### Optimization

optimization equation will be the cost relation  $C = 0.2x + 0.3y$ , and we need the minimum value

$$(0, 5) = 1.5$$

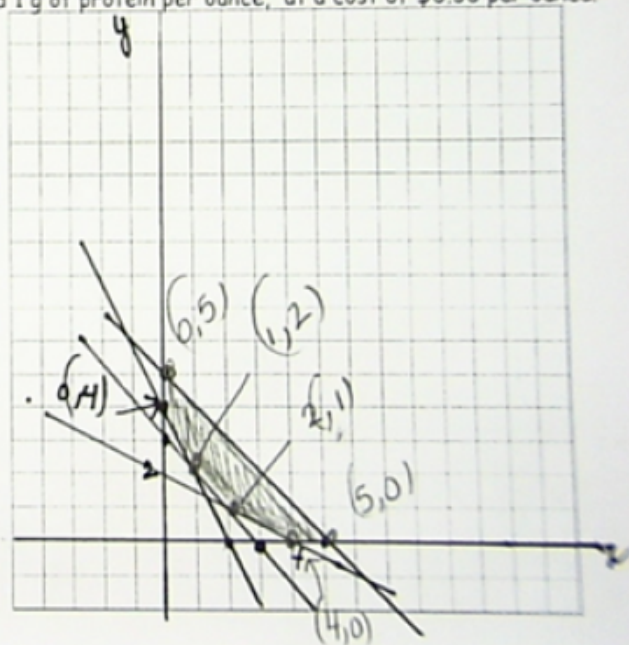
$$(0, 4) = 1.2$$

$$(1, 2) = 0.8$$

$$(2, 1) = 0.7$$

$$(5, 0) = 1.0$$

$$\text{Minimum } (4, 0) = 0.8$$



2 of Food X

1 of Food Y

4.

**Constraints**

fat:  $6x + 12y \geq 24$

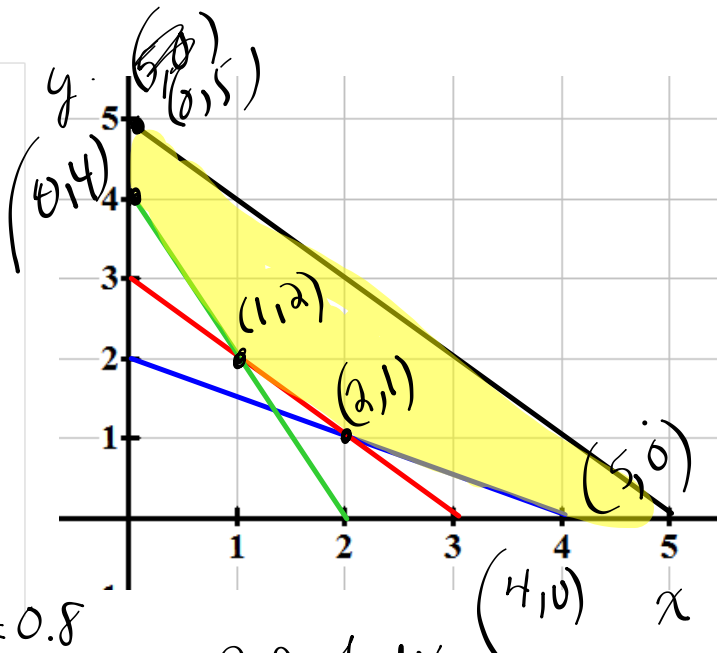
carbs:  $12x + 12y \geq 36$

protein:  $2x + 1y \geq 4$

the maximum weight of the food is five ounces, so:  $x + y \leq 5$

**Optimization**

optimization equation will be the cost relation:  $C = 0.2x + 0.3y$ , and we need the minimum value



$(0, 4) = 1.2$   
 $(0, 5) = 1.5$   
 $(1, 2) = 1.0$   
 $(2, 1) = 0.7$

$(4, 0) = 0.8$   
 $(5, 0) = 1.6$

2 of food x  
1 of food y

5. For every bouquet that is sold at a fundraising banquet, \$5 goes to charity. For every ticket that is sold, \$18 goes to charity. The organizers' goal is to raise at least \$8000. The organizers need to know how many bouquets and tickets must be sold to meet their goal.

a) Define the variables and write a linear inequality to represent the situation.

b) Graph the linear inequality. The first coordinate is the number of bouquets and the second is the number of tickets.

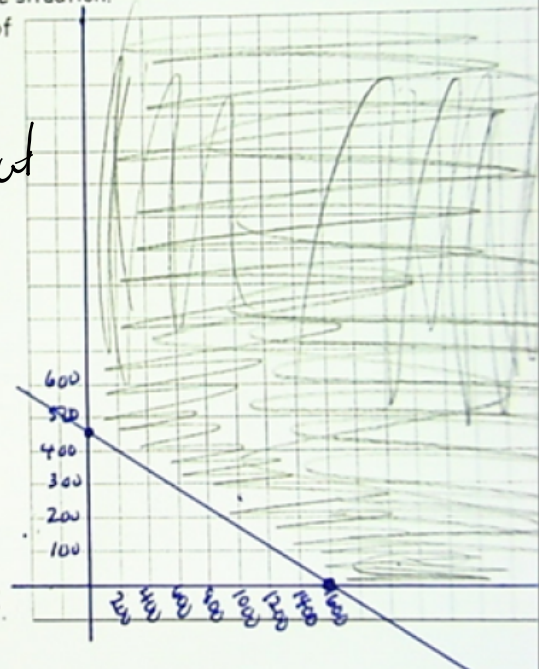
$$x = \# \text{ bouquet}$$

$$y = \# \text{ tickets}$$

$$5x + 18y \geq 8000$$

$$\begin{array}{r|l} x & y \\ 0 & 444.4 \\ 1600 & 0 \end{array}$$

← \$15 for every  
← \$18 for ticket



6.  $x = \#$  high school friends  
 $y = \#$  university friends

$$x + y \leq 375$$

$$x \geq 2y$$

7.  $x = \#$  hot dogs  
 $y = \#$  hamburgers

$$x + y \leq 300$$

$$x \leq 250$$

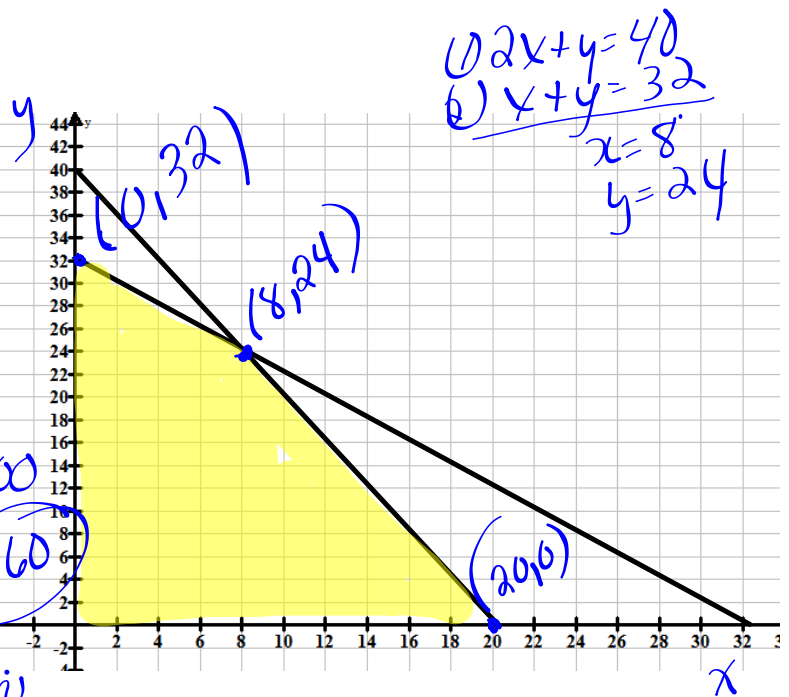
$$y \leq 125$$

Optimization  $3x + 2y$

8. Downhill CrossCountry

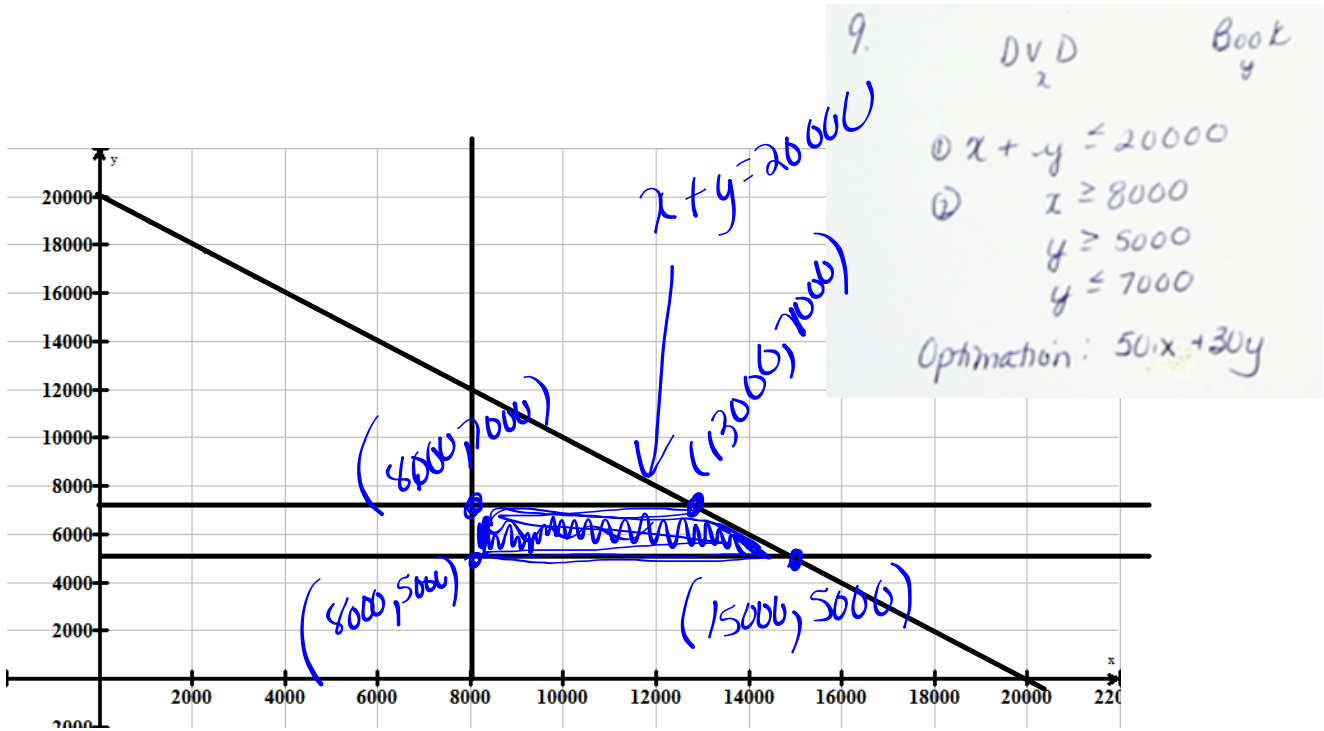
	$x$	$y$	
Assembly	$2x$	$1y$	$\leq 40$
Finish	$1x$	$1y$	$\leq 32$

$2x + y \leq 40$      $x \geq 0$   
 $x + y \leq 32$      $y \geq 0$   
 Optimization  $70x + 50y$



$70x + 50y$   
 $(0, 32) = 70(0) + 50(32) = 1600$   
 $(8, 24) = 70(8) + 50(24) = 1760$   
 $(20, 0) = 70(20) + 50(0) = 1400$





Optimization:  $50x + 30y$

- $(8000, 7000) = 610000$
- $(8000, 5000) = 550000$
- $(15000, 5000) = 900000$
- $(13000, 7000) = 860000$

## Unit 2: Quadratics

1.  $y = -7x^2 - 126x - 700$   
 $y = -7(x^2 + 18x) - 700$   
 $y = -7(x^2 + 18x + 81 - 81) - 700$   
 $y = -7(x^2 + 18x + 81) + 567 - 700$   
 $y = -7(x+9)^2 - 133$   
 opens down  
 (-9, -133)  
 range  $y \leq -133$   
 max of -133  
 y-int -700

b.  $y = 9.5x^2 - 76x + 141$   
 $y = 9.5(x^2 - 8x) + 141$   
 $y = 9.5(x^2 - 8x + 16 - 16) + 141$   
 $y = 9.5(x^2 - 8x + 16) - 152 + 141$   
 $y = 9.5(x-4)^2 - 11$   
 opens up  
 (4, -11)  
 range  $y \geq -11$   
 min of -11  
 y-int 141

c.  $y = \frac{1}{5}x^2 + 4x + 24$   
 $y = \frac{1}{5}(x^2 + 20x) + 24$   
 $y = \frac{1}{5}(x^2 + 20x + 100 - 100) + 24$   
 $y = \frac{1}{5}(x^2 + 20x + 100) - 20 + 24$   
 $y = \frac{1}{5}(x+10)^2 + 4$   
 opens up  
 (-10, 4)  
 range  $y \geq 4$   
 min of 4  
 y-int 24

d.  $y = 11x^2 - 22x - 4$   
 $y = 11(x^2 - 2x) - 4$   
 $y = 11(x^2 - 2x + 1 - 1) - 4$   
 $y = 11(x^2 - 2x + 1) - 11 - 4$   
 $y = 11(x-1)^2 - 15$   
 opens up  
 (1, -15)  
 range  $y \geq -15$   
 min of -15  
 y-int -4

2. Fill in the following: Show your work on a separate sheet when you change to standard form

Function remember $y=a(x-h)^2+k$	a	Opens Up or down	Vertex (h,k)	Axis of symmetry	Range	Standard form	Max/min	y-intercept
$y = -\frac{1}{3}(x-4)^2 - 11$	$\frac{1}{3}$	Down	(4, -11)	$x=4$	$y \leq -11$	$y = \frac{1}{3}x^2 + \frac{8}{3}x - \frac{49}{3}$	max -11	$-\frac{49}{3}$
$y = 1.9(x+1)^2 + 18$	1.9	Up	(-1, 18)	$x=-1$	$y \geq 18$	$y = 1.9x^2 + 3.8x + 19.9$	min 18	18.9
$y = -x^2 + 6$	1	Down	(0, 6)	$x=0$	$y \leq 6$	$y = -x^2 + 6$	max 6	6
$y = 2(x-13)^2$	2	Up	(13, 0)	$x=13$	$y \geq 0$	$y = 2x^2 - 52x + 338$	min 0	0
$y = 14(x-10)^2 - 3.2$	14	Up	(10, -3.2)	$x=10$	$y \geq -3.2$	$y = 14x^2 - 280x + 1432$	min -3.2	1432

3.  $y = -3(x+4)^2 + 32$   
 vertex (-4, 32)  
 opens down

$y = -3(x+4)^2 + 32$   
 $y = -3(x^2 + 8x + 16) + 32$   
 $y = -3x^2 - 24x - 48 + 32$   
 $y = -3x^2 - 24x - 16$

y-int: -16  
 x-int:  $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$   
 $\frac{24 \pm \sqrt{384}}{-6}$   
 -7.3      -0.73

b.  $y = \frac{1}{4}(x-12)^2 - 60$   
 vertex (12, -60)  
 opens up

$y = \frac{1}{4}(x-12)(x-12) - 60$   
 $y = \frac{1}{4}(x^2 - 24x + 144) - 60$   
 $y = \frac{1}{4}x^2 - 6x + 36 - 60$   
 $y = \frac{1}{4}x^2 - 6x - 24$

y-int: -24  
 x-int:  $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$   
 $\frac{6 \pm \sqrt{60}}{0.5}$   
 27.5      -3.5

4. vertex (9,3)

(a) pt (7,-13)

$$y = a(x-9)^2 + 3$$

$$-13 = a(7-9)^2 + 3$$

$$-13 = a(-2)^2 + 3$$

$$-16 = 4a$$

$$a = -4$$

$$y = -4(x-9)^2 + 3$$

vertex (14,12)

(b) pt (8,660)

$$y = a(x-14)^2 + 12$$

$$660 = a(8-14)^2 + 12$$

$$660 - 12 = a(-6)^2$$

$$648 = 36a$$

$$18 = a$$

$$y = 18(x-14)^2 + 12$$

$$y = a(x-h)^2 + k$$

5. (a)  $x^2 - 14x + 45$  ST  
 $(x-9)(x-5)$

(c)  $x^2 - 144$  DS  
 $(x-12)(x+12)$

(b)  $3x^2 + 16x - 12$  HT

$3x^2 + 18x - 2x - 12$

$3x(x+6) - 2(x+6)$

$(x+6)(3x-2)$

(f)  $9x^2 - 100$  DS  
 $(3x-10)(3x+10)$

(g)  $9x^2 - 6x - 8$  HT

$9x^2 - 12x + 6x - 8$

$3x(3x-4) + 2(3x-4)$

$(3x-4)(3x+2)$

(e)  $x^2 + x - 56$  ST  
 $(x+8)(x-7)$

(d)  $8x^2 - 2x - 3$  HT

$8x^2 - 6x + 4x - 3$

$2x(4x-3) + 1(4x-3)$

$(4x-3)(2x+1)$

(h)  $12x^2 + 16x + 5$  HT

$12x^2 + 10x + 6x + 5$

$2x(6x+5) + 1(6x+5)$

$(6x+5)(2x+1)$

Simple trinomial  
hard trinomials  
(decomposition)  
diff. of squares

$$\begin{aligned}
 6.(a) \quad & 8x(x-5) - 7(2-3x) = 3x+7 \\
 & 8x^2 - 40x - 14 + 21x = 3x+7 \\
 & 8x^2 - 22x - 21 = 0 \quad \rightarrow \text{Quad Form}
 \end{aligned}$$

$$\frac{22 \pm \sqrt{1156}}{16}$$

$$\frac{22 \pm 34}{16} \begin{cases} 3.5 \\ -0.75 \end{cases}$$

$$\begin{aligned}
 6.(b) \quad & -x^2 + 3x + 2 = -3x^2 - 2x + 4 \\
 & 2x^2 + 5x - 2 = 0
 \end{aligned}$$

OR Quad Form

$$\frac{-5 \pm \sqrt{41}}{4}$$

$$\begin{cases} 0.35 \\ -2.85 \end{cases}$$

$$\begin{aligned}
 7.(a) \quad & h = 5t^2 - 40t + 83.4 \\
 & h = 5(t^2 - 8t) + 83.4 \\
 & h = 5(t^2 - 8t + 16 - 16) + 83.4 \\
 & h = 5(t^2 - 8t + 16) - 80 + 83.4 \\
 & h = 5(t-4)^2 + 3.4 \\
 & \text{min height} = 3.4\text{m}
 \end{aligned}$$

$$\begin{aligned}
 (b) \quad & \text{When } t=0 \\
 & h = 5(0)^2 - 40(0) + 83.4 \\
 & h = 83.4\text{m}
 \end{aligned}$$

$$\begin{aligned}
 (c) \quad & 5 = 5t^2 - 40t + 83.4 \\
 & 0 = 5t^2 - 40t + 78.4 \\
 & \frac{40 \pm \sqrt{32}}{10} \begin{cases} 3.4\text{sec} \\ 4.6\text{sec} \end{cases}
 \end{aligned}$$

$$8.(a) \quad h = -9.8t^2 + 58.8t + 67.2$$

$$h = -9.8(t^2 - 6t) + 67.2$$

$$h = -9.8(t^2 - 6t + 9 - 9) + 67.2$$

$$h = -9.8(t^2 - 6t + 9) + 88.2 + 67.2$$

$$h = -9.8(t - 3)^2 + 155.4$$

$$\text{max } h = 155.4 \text{ m}$$

$$(b) \text{ at } t = 3 \text{ sec}$$

$$(c) \text{ at } t = 5$$

$$h = -9.8(5)^2 + 58.8(5) + 67.2$$

$$h = 116.2 \text{ m}$$

$$9.(a) \quad h = -7t^2 + 7t + 2.25$$

$$h = -7(t^2 - t) + 2.25$$

$$h = -7(t^2 - t + 0.25 - 0.25) + 2.25$$

$$h = -7(t^2 - t + 0.25) + 1.75 + 2.25$$

$$h = -7(t - 0.5)^2 + 4$$

$$\text{max } h = 4 \text{ m}$$

$$(c) \quad 2.25 \text{ m}$$

$$(d) \quad 1 = -7t^2 + 7t + 2.25$$

$$0 = -7t^2 + 7t + 1.25$$

$$\frac{-7 \pm \sqrt{84}}{-14}$$

$$-0.15$$

$$1.15$$

$$1.15 \text{ sec}$$

$$(b) \quad 0.5 \text{ sec}$$

$$10. (a) h = -4.9t^2 + 29.4t - 7.9$$

$$h = -4.9(t^2 - 6t) - 7.9$$

$$-4.9(t^2 - 6t + 9 - 9) - 7.9$$

$$-4.9(t^2 - 6t + 9) + 44.1 - 7.9$$

$$h = -4.9(t - 3)^2 + 36.2$$

$$\underline{36.2 \text{ m}}$$

$$(b) 3 \text{ sec}$$

$$(c) h = -4.9(5)^2 + 29.4(5) - 7.9$$

$$\underline{= 16.6}$$

$$(d) 25 = -4.9t^2 + 29.4t - 7.9$$

$$0 = -4.9t^2 + 29.4t - 32.9$$

$$\frac{-29.4 \pm \sqrt{219.52}}{-9.8}$$

$$1.49$$

sec

$$4.51$$

sec

$$(e) \text{ when } h = 0$$

$$0 = -4.9t^2 + 29.4t - 7.9$$

$$\frac{-29.4 \pm \sqrt{709.52}}{-9.8}$$

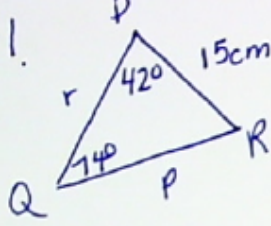
$$-9.8$$

$$0.28$$

$$\underline{5.72}$$

$$5.72 \text{ sec}$$

# Trigonometry

1. 

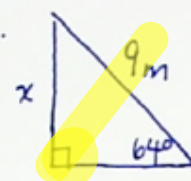
$$\frac{r}{\sin 42^\circ} = \frac{15}{\sin 74^\circ}$$

$r = 10.4$

$\angle R = 64^\circ$

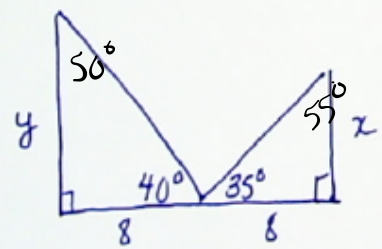
$$\frac{r}{\sin 64^\circ} = \frac{15}{\sin 74^\circ}$$

$r = 14.03$

2. 

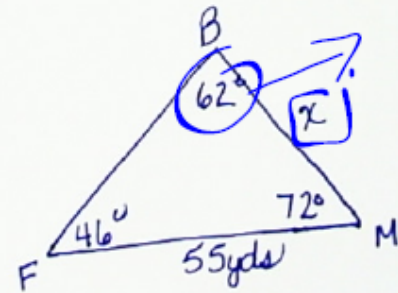
$$\sin 64^\circ = \frac{x}{9} \text{ OR } \frac{x}{\sin 64^\circ} = \frac{9}{\sin 90^\circ}$$

$x = 8.1m$

3. 

$y = 6.7$        $x = 5.6$

$6.7 - 5.6 = 1.1$

4. 

$$\frac{x}{\sin 46^\circ} = \frac{55}{\sin 62^\circ}$$

$x = 44.8 \text{ yds}$

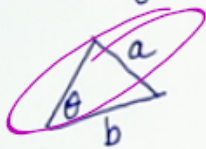
$$\frac{y}{\sin 46^\circ} = \frac{8}{\sin 50^\circ}$$

$y = 6.7$

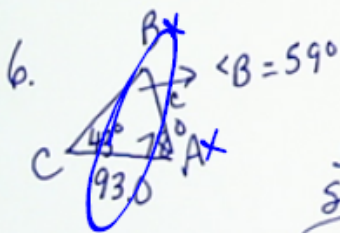


5. (a) A side and angle opposite.  
 b) SAS or SSS

(c) Law of Sines: Given 2 sides and an angle

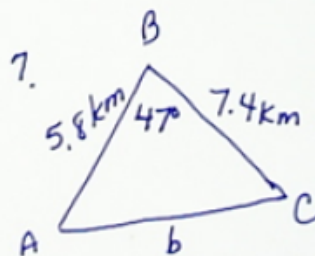


when  $a < b$



$$\frac{c}{\sin 43^\circ} = \frac{93}{\sin 59^\circ}$$

$$c = 73.99$$

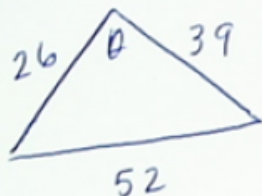


$$b^2 = 5.8^2 + 7.4^2 - 2(5.8)(7.4)\cos 47^\circ$$

$$b^2 = 29.857$$

$$b = 5.46 \text{ km}$$

8.

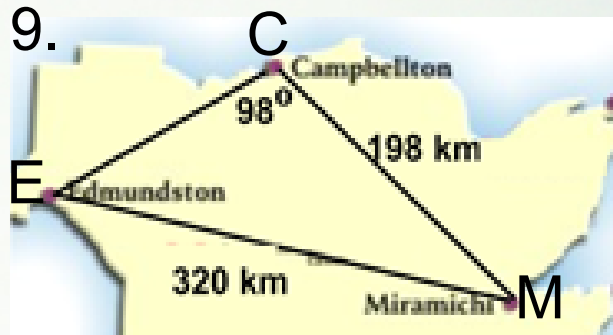


$$\cos \theta = \frac{26^2 + 39^2 - 52^2}{2(26)(39)}$$

$$\cos \theta = -0.25$$

$$\theta = 104.5^\circ$$

9.

Find E

$$\frac{198}{\sin E} = \frac{320}{\sin 98^\circ}$$

$$\sin E = \frac{198 \sin 98^\circ}{320}$$

$$\sin E = 0.6127$$

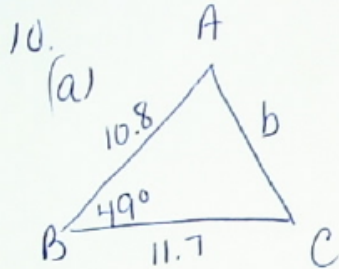
$$E = 37.8^\circ$$

$$\angle E = 37.8^\circ$$

$$\angle M = 44.2^\circ$$

$$\frac{x}{\sin 44.2^\circ} = \frac{320}{\sin 98^\circ}$$

$$x = 225.3 \text{ km}$$



$$b^2 = 10.8^2 + 11.7^2 - 2(10.8)(11.7)\cos 49^\circ$$

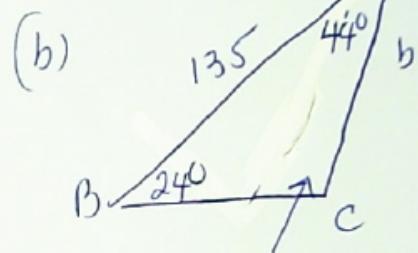
$$b^2 = 87.7308$$

$$b = 9.4$$

$$\frac{\sin C}{10.8} = \frac{\sin 49^\circ}{9.4}$$

$$\sin C = 0.8671$$

$$C = 60^\circ \quad A = 71^\circ$$



$$C = 112^\circ$$

$$\frac{b}{\sin 24^\circ} = \frac{135}{\sin 112^\circ}$$

$$b = 59.2$$

$$\frac{a}{\sin 44^\circ} = \frac{135}{\sin 112^\circ}$$

$$a = 101.1$$

11. Determine the measure of the obtuse angle at A in triangle PAL

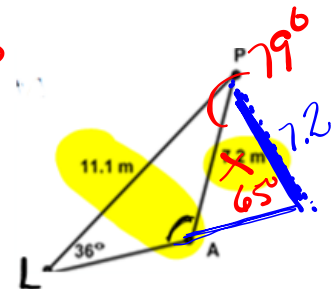
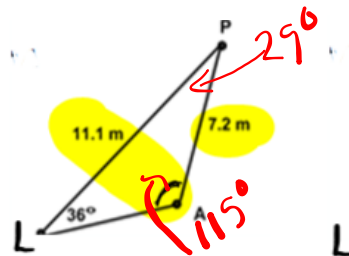
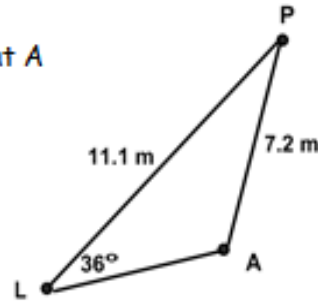
$$\frac{\sin A}{11.1} = \frac{\sin 36^\circ}{7.2}$$

$$\sin A = \frac{11.1 \sin 36^\circ}{7.2}$$

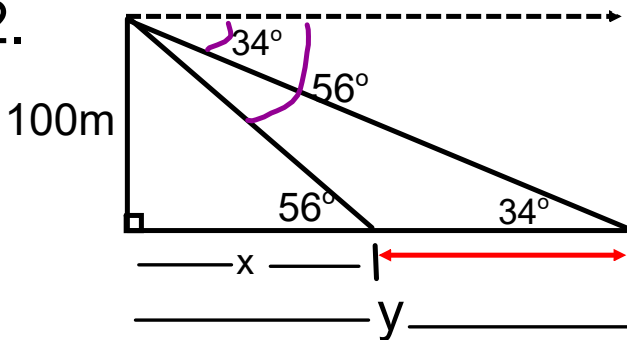
$$\sin A = 0.9062$$

$$A = \sin^{-1} 0.9062$$

$$A = 65^\circ \quad \text{other } \angle: 180 - 65 = 115^\circ \text{ obtuse}$$



12.



$$\tan 56^\circ = \frac{100}{x}$$

$$x = \frac{100}{\tan 56^\circ}$$

$$x = 67.5 \text{ m}$$

$$\tan 34^\circ = \frac{100}{y}$$

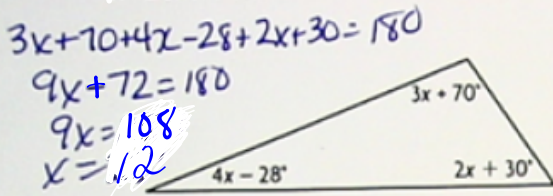
$$y = \frac{100}{\tan 34^\circ}$$

$$y = 148.3 \text{ m}$$

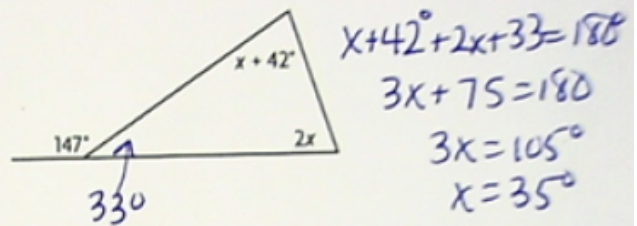
$$148.3 \text{ m} - 67.5 \text{ m} = 80.8 \text{ m}$$



9. Determine the value of  $x$ .



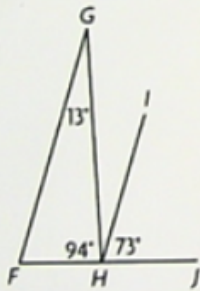
10. Determine the value of  $x$ .



11. Determine the sum of the measures of the angles in a 13-sided convex polygon. Show your calculation.

$180(13 - 2)$   
 $= 1980^\circ$

12. Prove:  $FG \parallel HI$

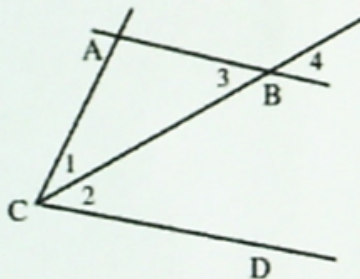


state.	justification:
$\angle FHG = 94^\circ$	Given
$\angle IHI = 73^\circ$	Given
$\angle GHF = 13^\circ$	Supplementary
$\angle FGH = 13^\circ$	Given
$\angle FGH = \angle GHI$	proven
$FG \parallel HI$	equal alt $\angle$ s

13. Given  $AB \parallel CD$

$\angle 1 = \angle 4$

Prove:  $\angle 1 = \angle 2$

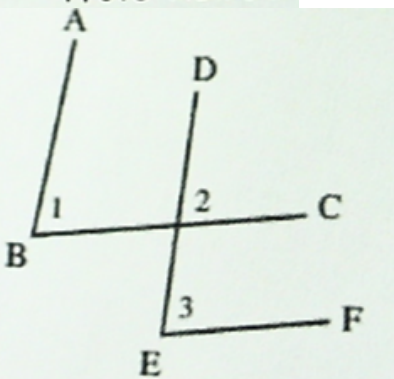


Statement	reason
$AB \parallel CD$	given
$\angle 1 = \angle 4$	given
$\angle 4 = \angle 2$	Corresp. $\angle$ s.
$\angle 1 = \angle 2$	transitive

14. Given  $BC \parallel EF$

$\angle 1 = \angle 3$

Prove:  $AB \parallel DE$



Statement	reason
$BC \parallel EF$	given
$\angle 1 = \angle 3$	given
$\angle 2 = \angle 3$	Corresp. $\angle$ s
$\angle 1 = \angle 2$	transitive
$AB \parallel DE$	equal corr. $\angle$ s

15. Given  $\angle z = 115^\circ$ .  
Determine the measures of  $y$ .

$a = 65^\circ$   
 $n = 50^\circ$   
 $m = 40^\circ$   
 $b = 70^\circ$   
 $x = 45^\circ$   
 $y = 110^\circ$

16.

Each  $\angle = \frac{180(n-2)}{n}$   
 $\frac{180(6-2)}{6} = 120^\circ$

$\angle a = 120^\circ$   
 $\angle b = 30^\circ$   
 $\angle c = 30^\circ$

Unit 5: Financial

1. Patrick purchased a \$15000 GIC for 12 years with a simple interest rate of 3.7%. What is his GIC worth in 12 years?

2. Wendy sold her acre of land by the river for \$35 000, she plans to invest the money for 20 years. Her options are:  
 • Option A: 20-year bond at 4.5%, compounded semi-annually.  
 • Option B: 10-year GIC at 3.1%, compounded semi-annually; reinvest funds in a 10-year GIC at 5.1%, compounded quarterly.  
 a. Determine the future value of each investment  
 b. Determine the rate of return (round to the nearest tenth of a percent) for each investment

Option A:

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$= 35000 \left(1 + \frac{0.045}{2}\right)^{20(2)}$$

$$= 35000 \left(1 + \frac{0.045}{2}\right)^{40}$$

$$= \$45321.61$$

Option B:

first 10 yrs

$$A = 35000 \left(1 + \frac{0.031}{2}\right)^{10(2)}$$

$$= 35000 \left(1 + \frac{0.031}{2}\right)^{20}$$

$$= \$47606.54$$

next 10 yrs:

$$A = 47606.54 \left(1 + \frac{0.051}{4}\right)^{4(10)}$$

$$= 47606.54 \left(1 + \frac{0.051}{4}\right)^{40}$$

$$= \$79023.58$$

b)  $ROR = \frac{\text{Interest earned}}{\text{amt. invested}}$

opt A =  $\frac{50321.61}{35000} = 1.44$  (14%)

opt B =  $\frac{44023.58}{35000} = 1.26$  (12.6%)

3 a. How much should your parents have invested when you were born if interest rates were 7.3% compounded monthly if they wished to have 430000 for your 18<sup>th</sup> birthday for school.  
 b. Approximately how long would it take for a sum of money to double if it is invested at 9.5%

(a)  $P = \frac{A}{\left(1 + \frac{r}{n}\right)^{nt}}$

$$= \frac{430000}{\left(1 + \frac{0.073}{12}\right)^{12(18)}}$$

$$= \$116021.38$$

(b) Doubling Period =  $\frac{72}{9.5}$  (7.6 yrs)

4. Sylvia opened this portfolio when she turned 25.  
 • Monthly deposits of \$275 into an account averaging 5.8%, compounded daily  
 • A \$10 000 bond earning 8.3%, compounded monthly  
 What will be the value of the portfolio when she turns 55? Show your work.

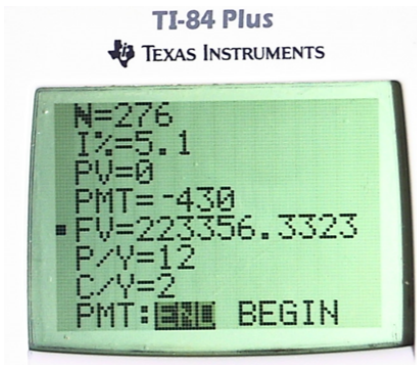
N=360  
 I%=5.8  
 PV=0  
 PMT=-275  
 FV=265906.7735  
 P/Y=12  
 C/Y=12  
 PMT: [ ] [ ] [ ] BEGIN

$10000 * (1 + \frac{0.083}{12})^{360}$   
 119583.31

+ \$265906.77  
 + \$119583.31  
 \$385490.08



5. Barney Rubble regularly deposits \$430 per month into a Registered Retirement Savings Plan (RRSP) for his retirement. How much money will he have when he retires in 23 years, knowing that the interest rate is 5.1% compounded semi-annually?

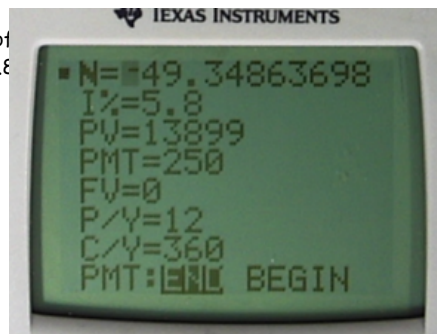


\$223356.33

6. Cynthia wants to purchase a used car 12300 plus HST of 15.99% of 12300.

$$6) 12300 + \frac{HST}{1599} = \$13899$$

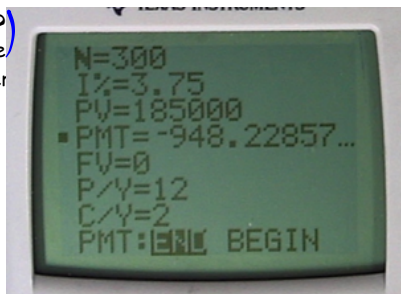
49 payments



7. The Wilsons are buying a house that costs \$260 000. They will finance the purchase with a 25 year mortgage with an interest rate of 3.75%, compounded semi-annually. They must make a down payment of \$75000.

- a) How much will each payment be?  
 b) How much interest will Debbie pay?  
 c) How much will she pay altogether?

$$260000 - 75000 = 185000$$



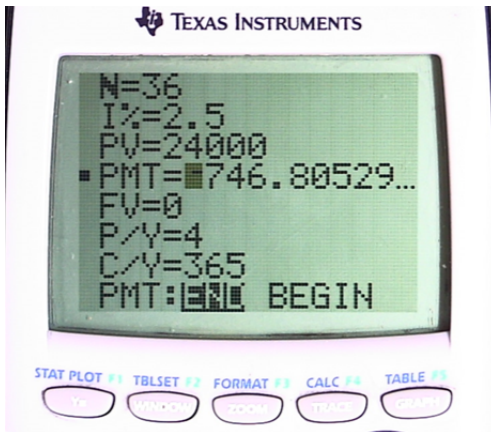
he loan? Show your work.

payment \$948.23

(b)  $948.23 \times 12 \times 25 = 284469$  is what she paid,  
 She mortgaged \$185000.  
 $284469 - 185000 = 99469$  interest

(c)  $260000$  OR  $185000 + 75000 + 99469$   
 $99469$  mortgage down payment interest  
 $\$359469 =$

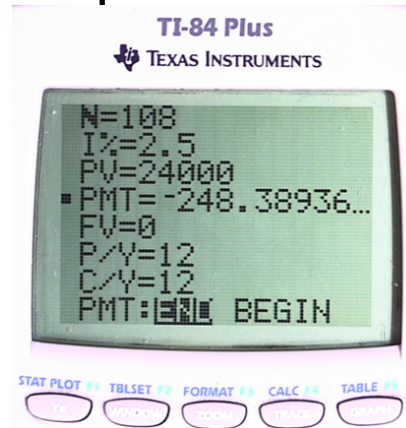
## 8. option A



payment \$746.81 quarterly  
for 9 years

$$\$746.81 \times 4 \times 9 = \$26885.16$$

## option B

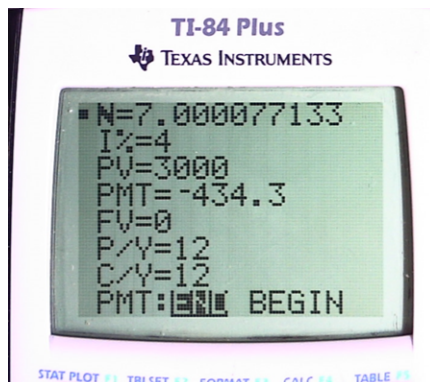


payment \$248.39 monthly  
for 9 years

$$\$248.39 \times 12 \times 9 = \$26933.04$$

cheaper

## 9.



7 payments

7 months

a.  $7 \times \$434.30 = \$3040.10$

b. \$40.10 interest

