Student Name

							Total
Criteria 1	0	8	16	24	32	40	
Criteria 2	0	8	16	24	32	40	
Criteria 3 & 4	0	4	8	12	16	20	

MINI SITUATIONAL PROBLEM #5:
UPGRADES FOR THE SCHOOL

Philemon Wright High School is planning to purchase some futuristic items for the upcoming year. The budget is $32 000.

Purchase 1:

Admin is going to buy Macbooks ($1000 each) and Dells ($500 each). As an experiment, the school plans to purchase 30 laptops for a total cost of $20 500.

Purchase 2:

To go with the computers the school will use the remaining budget to start a new movie making course. To stock the media room it will cost $10,000.

In addition, new video cameras will be rented for the year. One for each computer. It costs $0.015/ hr for a camera compatible with a Macbook and $0.014/hr for a camera with a Dell. The cameras are rented for 12 hours a day for 7 days a week for 44 weeks a year .

How many Macbooks and how many Dells will the school purchase? Can the school afford the rental fees of the camera equipment?

Your solution: ANSWER KEY
Purchase 1:

	# of laptops	Cost $
Macbooks	x	1000x
Dells	30 – x	500(30 – x) = 15000 – 500x

1000x + 15000 – 500x = 20500
500x = 5500
x = 11

Therefore they will purchase: 11 Macbooks for $11000
And 19 Dells for $ 9500

Purchase 2:
Let x be the number of hours to rent.
Total cost = 10000 + 0.015(11)x + 0.014(19)x
= 10000 + 0.165x + 0.266x
= 10000 + 0.431x
Total rental hours: (12)(7)(44) = 3696 hours

Total cost = 10000 + 0.431(3696) = $ 11592.976

Total for purchases 1 and 2:
11000 + 9500 + 11592.98 = 32092.98

The school will purchase 11 Macbooks and 19 Dells.
The school cannot afford the rental fees,
they are short by $92.98

Student Name

							Total
Criteria 1	0	8	16	24	32	40	
Criteria 2	0	8	16	24	32	40	
Criteria 3 & 4	0	4	8	12	16	20	

MINI SITUATIONAL PROBLEM #6:
KAMAKAZI POOL

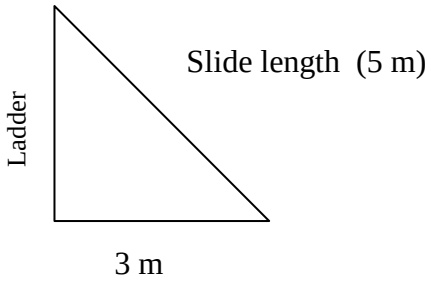
Jen always wanted an in-ground pool. She has hired you as a landscape architect to help her design the pool and fit it into her budget. Here is the layout that Jen wants for her backyard:

Pool

- The pool is a rectangle.
- The length measures 8 times more than the width.
- She estimates the perimeter to be more than 54 m but less than 90 m.
- Jen needs to install a fence around the pool and the cost is $50 per meter.
- She needs to put a cover on the pool which costs $40 / m^2.

Slide

- On the slide, the ladder rungs are 50 cm apart.
- She wants to cover the rungs with grip tape.
- The cost of covering one rung is $10.75.



What is the minimum and maximum cost of the job?

Your solution: ANSWER KEY

Pool:

x [ ]

8x

Fence:
54 < perimeter < 90
54 < 18x < 90
3 < x < 5

Min perimeter = 54 m
Max perimeter = 90 m

Min cost of fence = $ 2700
Max cost of fence = $4500

Cover:
Area = $8x^2$

min area = 72 m^2
max area = 200 m^2

min cost of cover = $ 2880
max cost of cover = $ 8000

Slide:
Ladder:
$a^2 = c^2 - b^2$
$= 5^2 - 3^2$
$= 25 - 9$
$= 16$
$a = 4$ m

number of rungs = 4/ 0.5 = 8 rungs

cost of rungs = 8(10.75) = $ 86

min cost = 2700 + 2880 + 86 = $ 5666
max cost = 4500 + 8000 + 86 = $ 12586