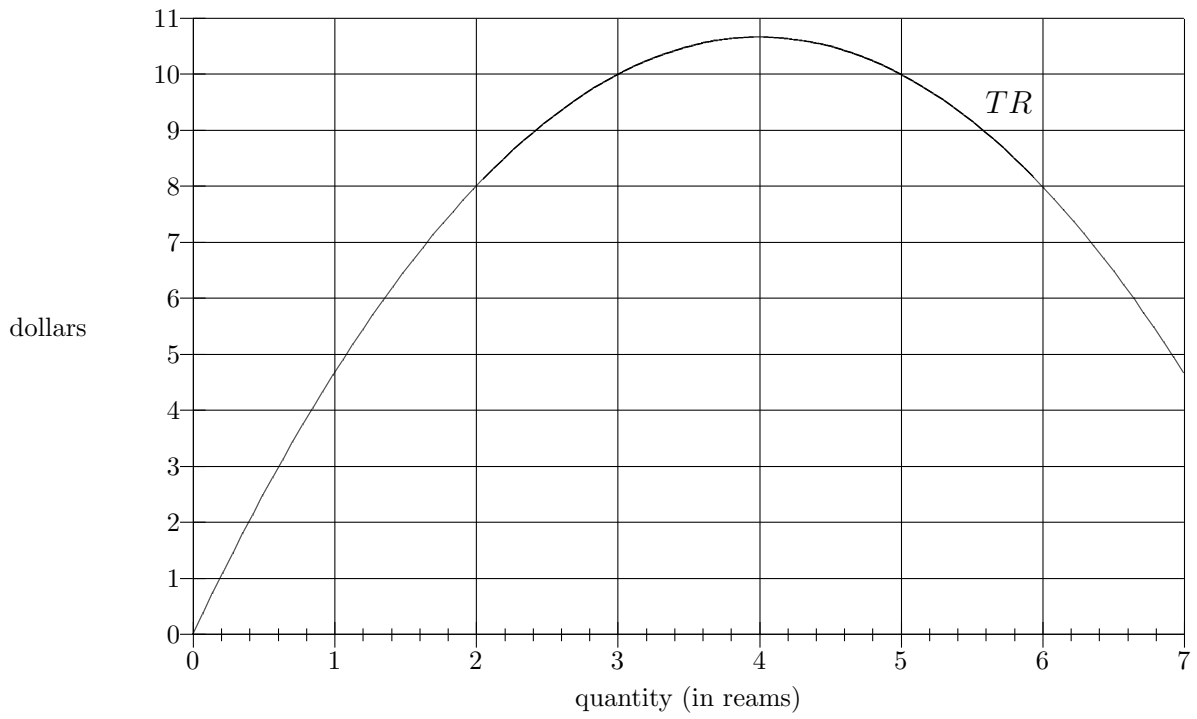
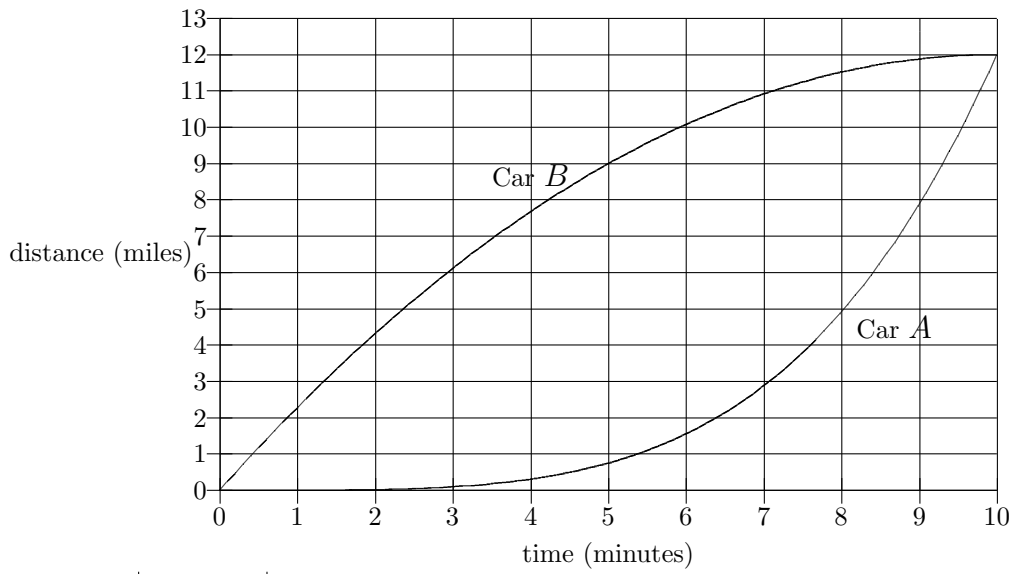


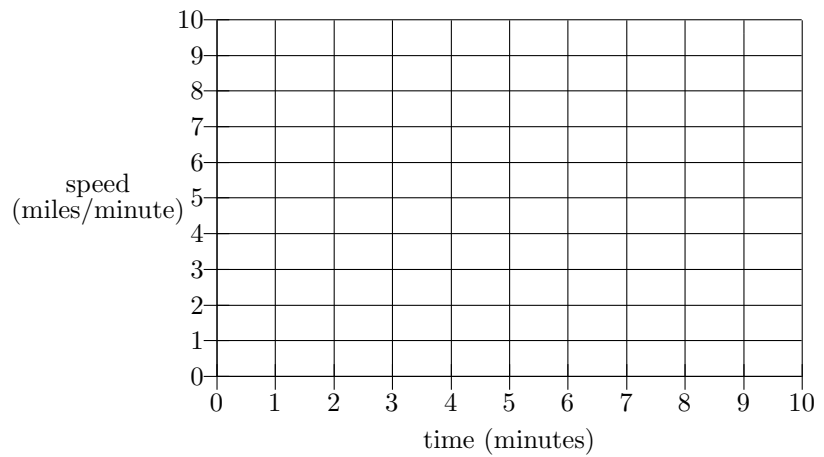
MATH 112
Lecture to Accompany Worksheet 2



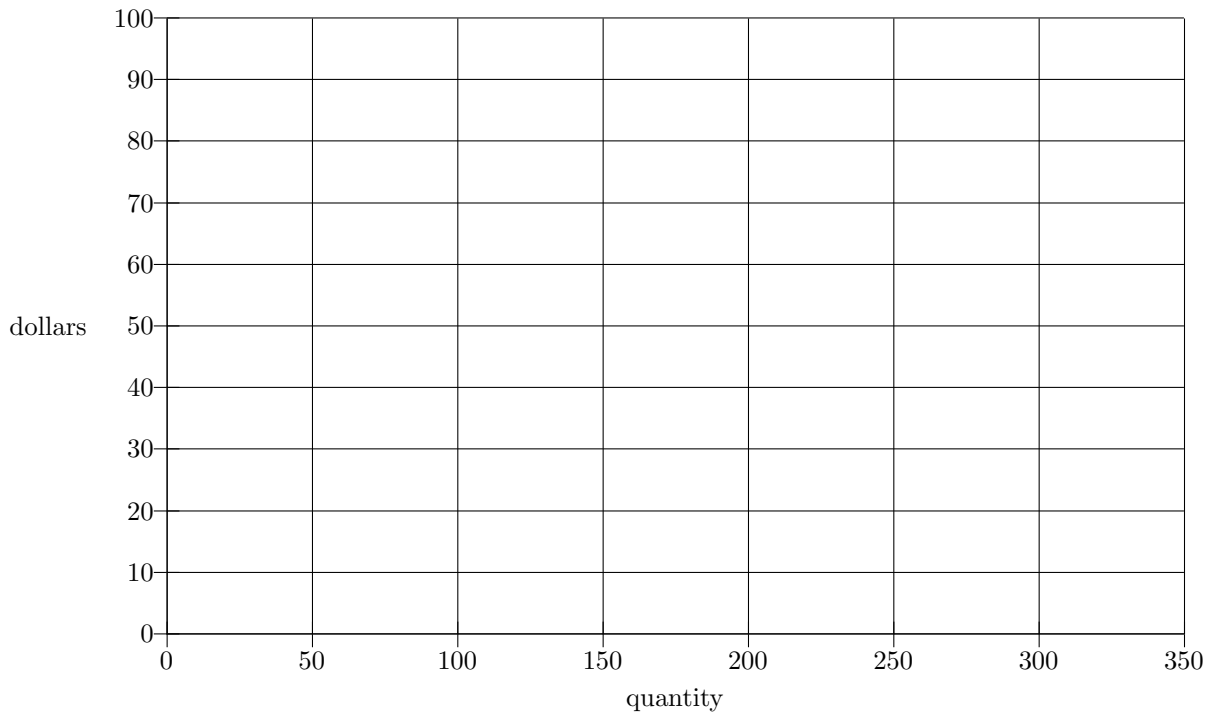
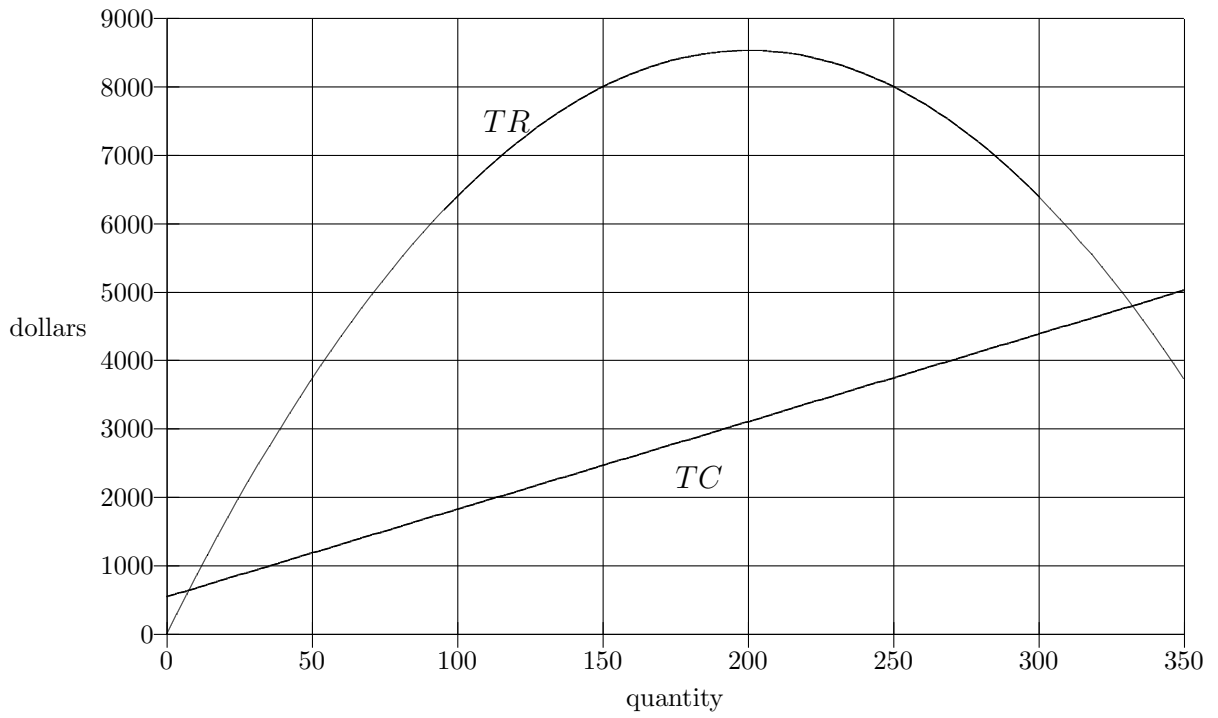
MATH 112
Lecture to Accompany Worksheet 4



| t | car A's speed | car B's speed |
|-----|---------------|---------------|
| 0 | | |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

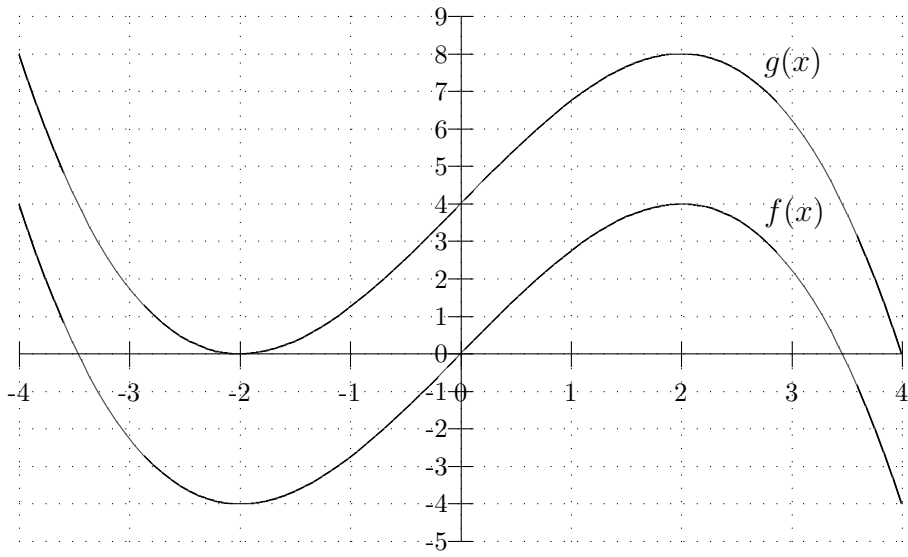


MATH 112
Lecture to Accompany Worksheet 5

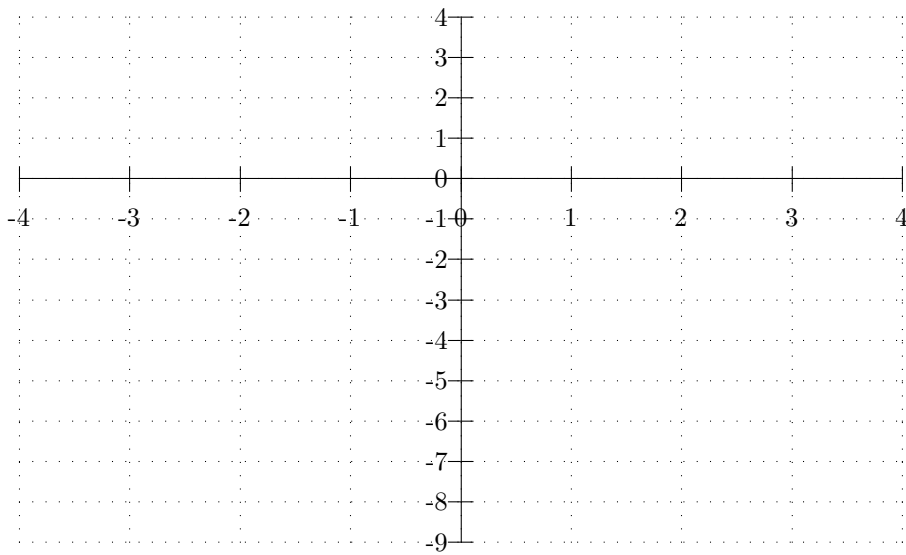


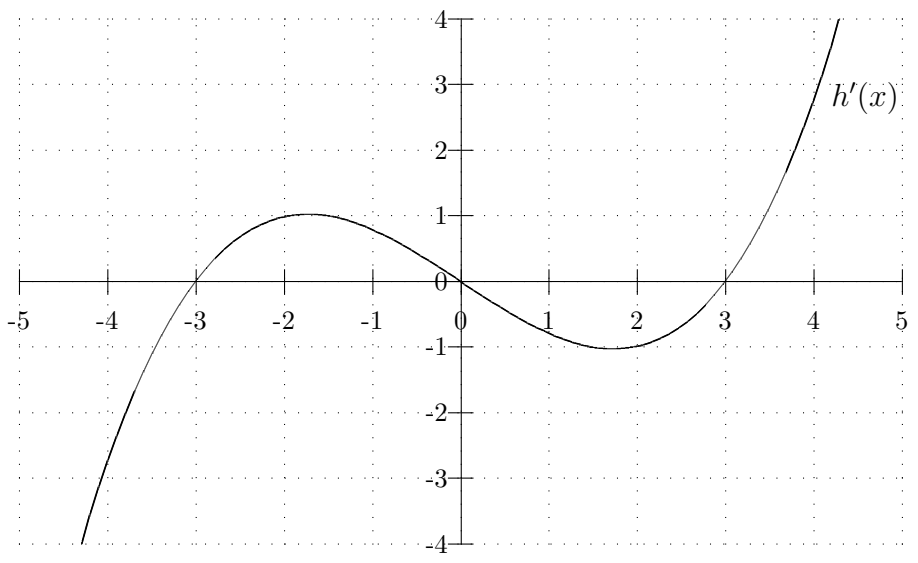
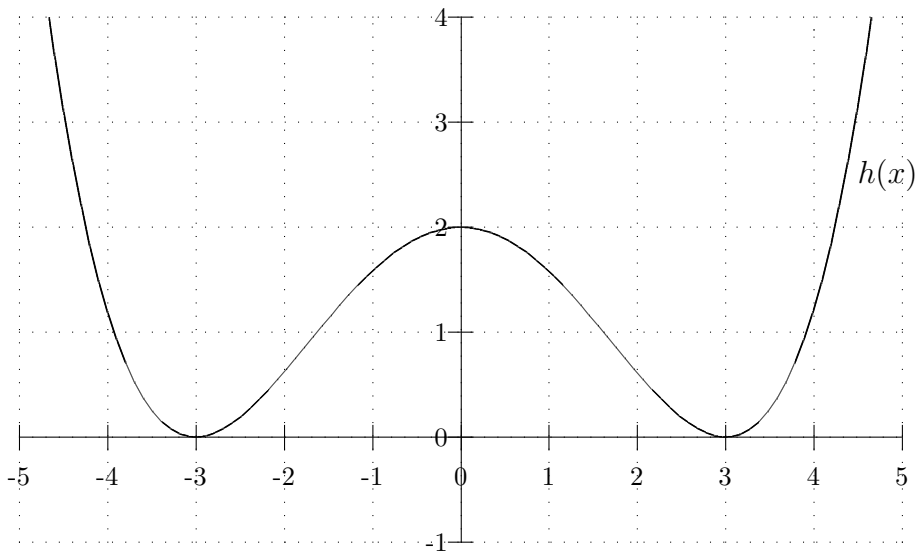
MATH 112

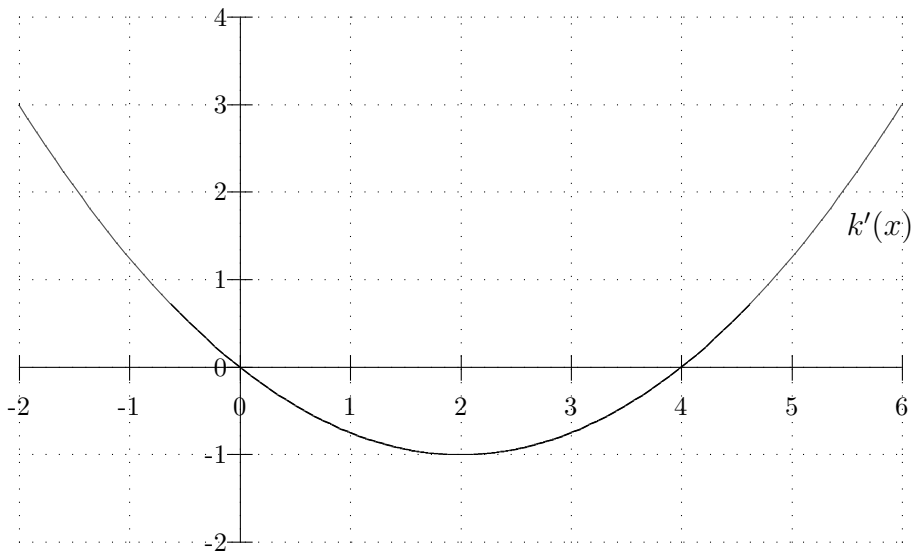
Lecture to Accompany Worksheet 6



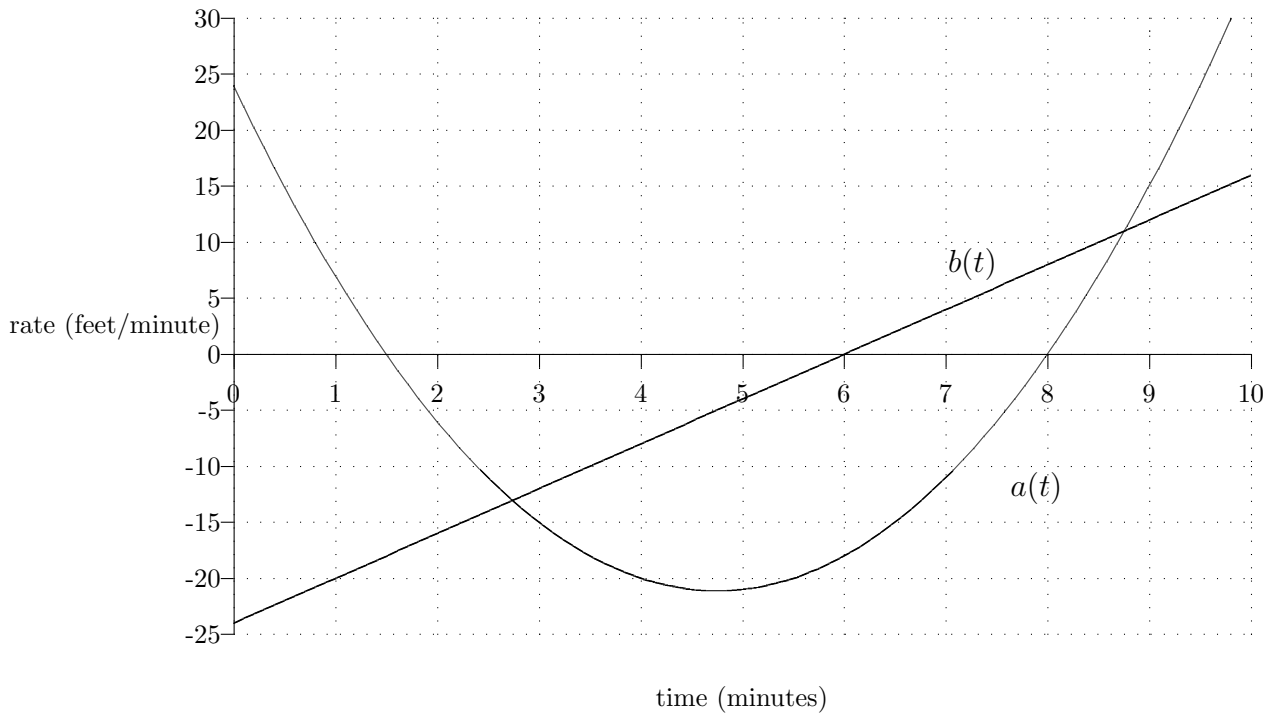
| x | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
|---------|----|----|----|----|---|---|---|---|---|
| $f'(x)$ | | | | | | | | | |
| $g'(x)$ | | | | | | | | | |







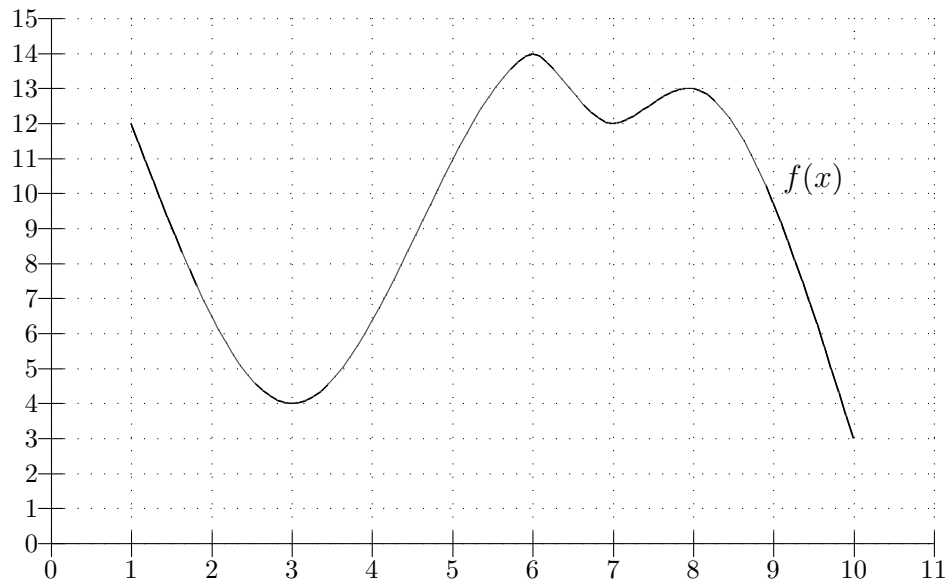
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Lecture to Accompany Worksheet 11



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Lecture to Accompany Worksheet 14

The following is the graph of a function $f(x)$ on the interval from $x = 1$ to $x = 10$.



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Lecture to Accompany Worksheet 18

Example: To earn a bit of extra cash, you start selling dried fruit and nut mixtures to hungry shoppers at the Fremont Sunday Flea Market. You sell two varieties:

- Mixture I: contains 25% fruit and 75% nuts
- Mixture II: contains 55% fruit and 45% nuts

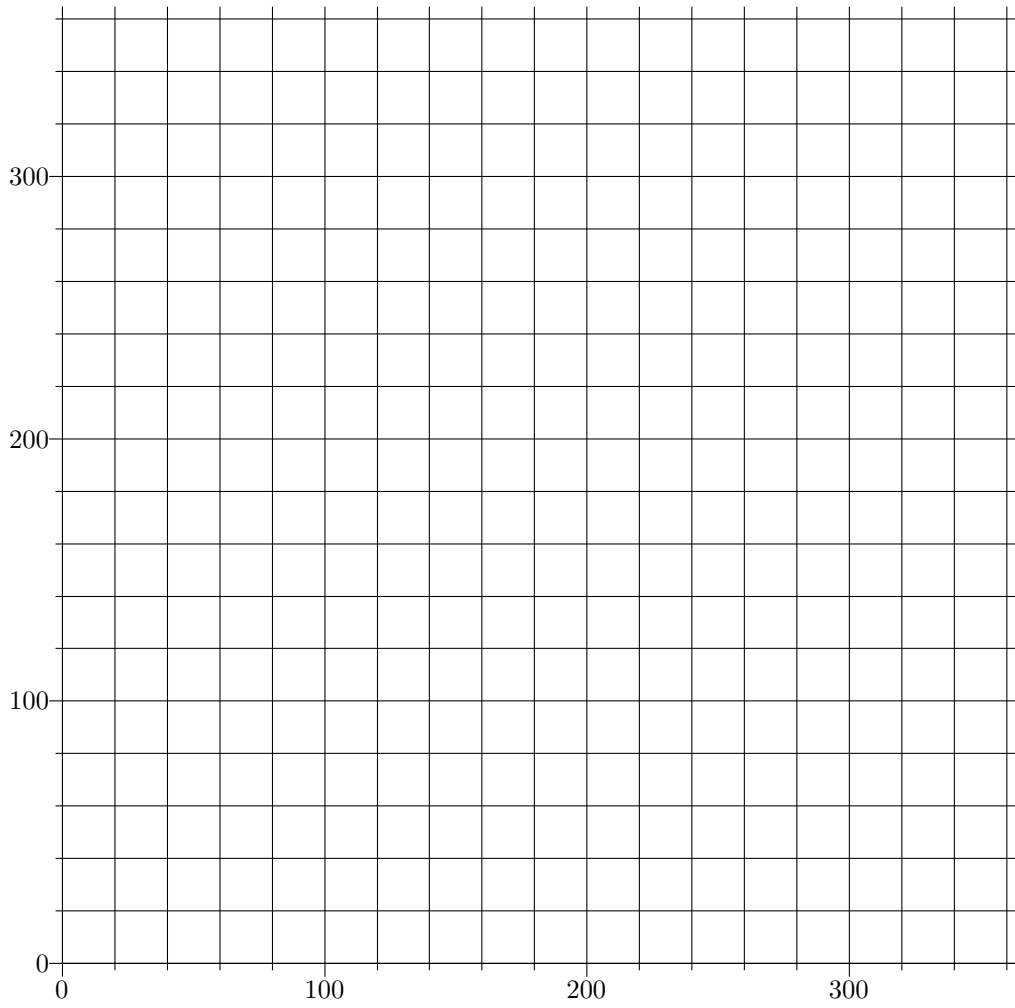
For every pound of Mixture I you sell, you make \$.35 profit; and for every pound of Mixture II, you make \$.60 profit. Your supply of fruit is limited to 90 pounds a day; your supply of nuts is limited to 120 pounds a day.

Let x be the amount of Mixture I that you make (in pounds) and y be the amount of Mixture II that you make (in pounds).

Key Question: How much of each mixture should you make in order to maximize profit?

Another Example: Gina inherits a large sum of money and a bunch of pet cages from an animal-loving aunt. She decides to rescue some unwanted pets from a shelter. She has 20 cages that can each house either a bunny or a ferret. She does some research and finds that, on average, it costs \$.60 a day to feed one ferret and \$.80 a day to feed one bunny. Gina can budget no more than \$14.40 a day for pet food. But cuddliness is an issue for Gina. She figures that bunnies are twice as cuddly as ferrets. That is, ferrets are each worth one cuddle-unit, while bunnies are each worth two.

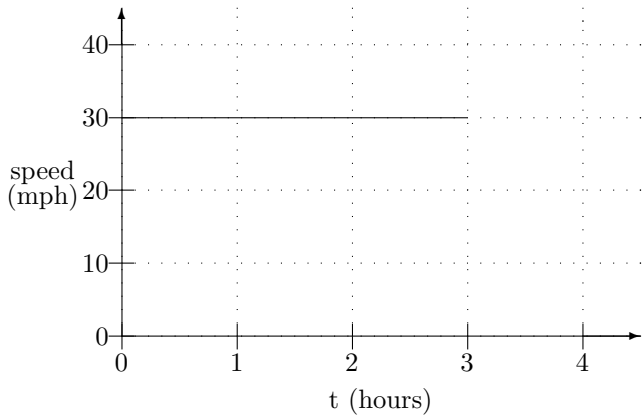
Determine how many of each pet Gina should adopt to maximize cuddliness while staying within her budget and without buying more cages.



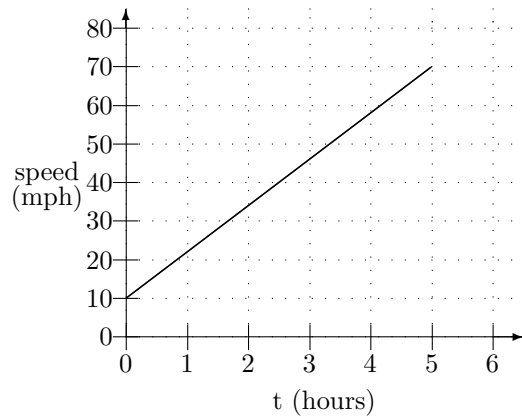
MATH 112

Lecture to Accompany Worksheet #19

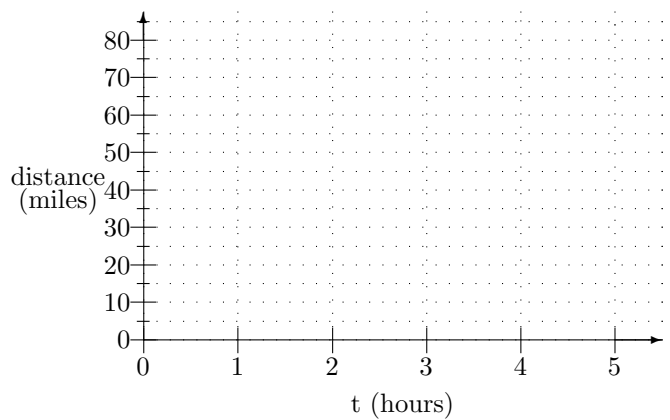
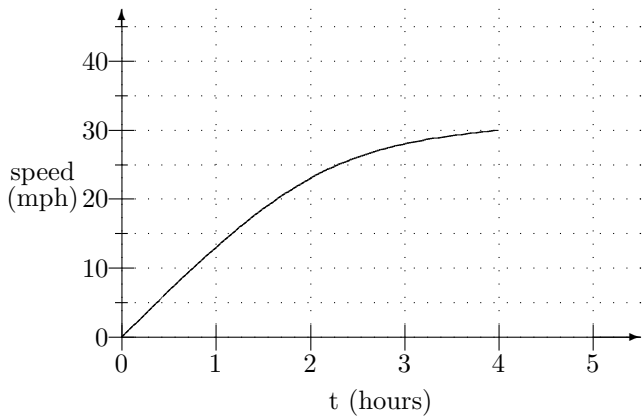
Example 1:



Example 2:



Example 3:

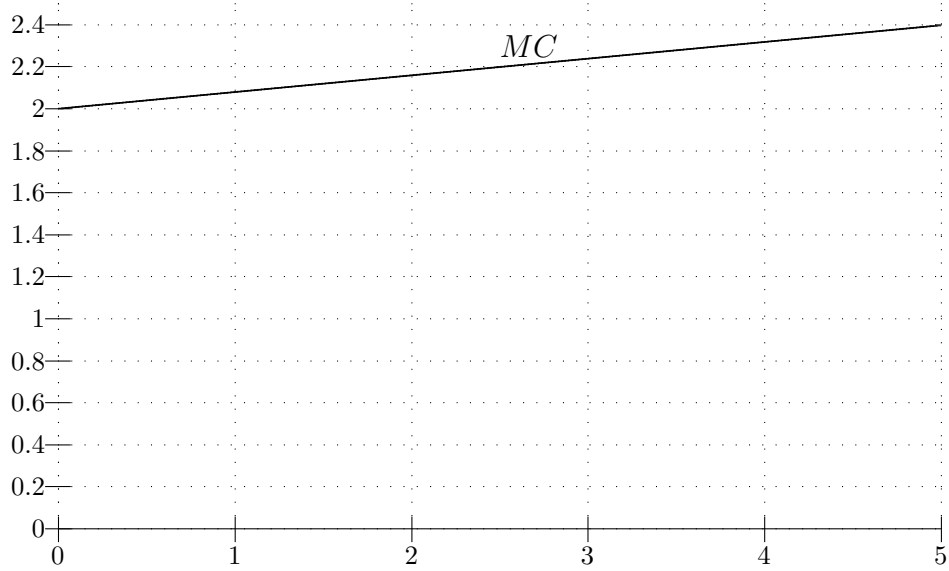
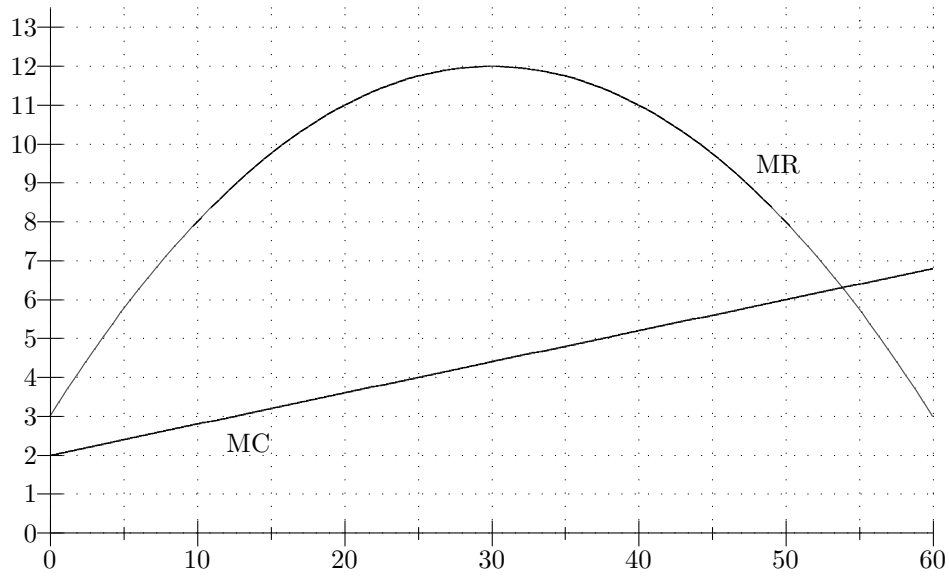


| Interval | 0-1 | 1-2 | 2-3 | 3-4 |
|-----------------------------------|-----|-----|-----|-----|
| Distance covered in that interval | | | | |

| time | 0 | 1 | 2 | 3 | 4 |
|-------------------------------|---|---|---|---|---|
| Distance covered by that time | | | | | |

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Lecture to Accompany Worksheet 20

TR/TC From MR/MC



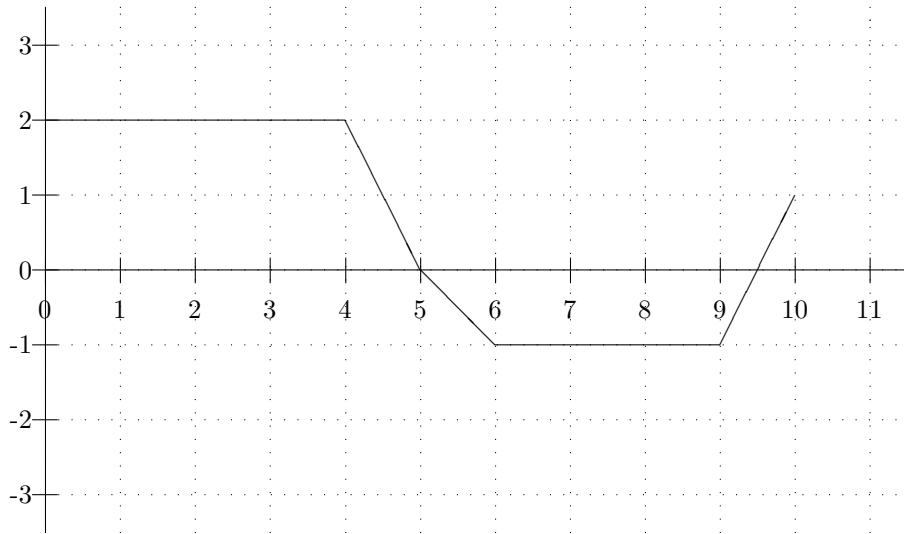
| Interval | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 |
|--|-----|------|-------|-------|-------|-------|-------|-------|
| Area under <i>MC</i> on that interval | | | | | | | | |

| <i>q</i> | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|--|---|---|----|----|----|----|----|----|----|
| Area under <i>MC</i> from 0 to <i>q</i> | | | | | | | | | |

| Interval | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 | 35-40 |
|--|-----|------|-------|-------|-------|-------|-------|-------|
| Area under <i>MR</i> on that interval | | | | | | | | |

| <i>q</i> | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
|--|---|---|----|----|----|----|----|----|----|
| Area under <i>MR</i> from 0 to <i>q</i> | | | | | | | | | |

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Lecture to Accompany Worksheet 21



| Interval | 0-1 | 1-2 | 2-3 | 3-4 | 4-5 | 5-6 | 6-7 | 7-8 | 8-9 | 9-10 |
|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Integral of $f(x)$ on that interval | | | | | | | | | | |

| m | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|---|---|---|---|---|---|---|---|---|---|----|
| $A(m)$ | | | | | | | | | | | |

