

# ALEKS® Final Word Problem Practice #1

Beginning Algebra / Math 100 Fall 2013 – 506 (Prof. Miller)

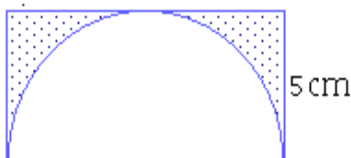
Student Name/ID:

**Instructor Note:**

Assignment: Set up a tutoring appointment with one of the campus tutors or with me. At that appointment, learn how to do the problems below and then work through them with the tutor. Have the tutor write and sign their name after you have completed all 40 problems. Then turn in this paper and any other pages you used to do the work. This assignment is worth 30 math dollars. Tutor (print): \_\_\_\_\_  
Tutor (sign): \_\_\_\_\_

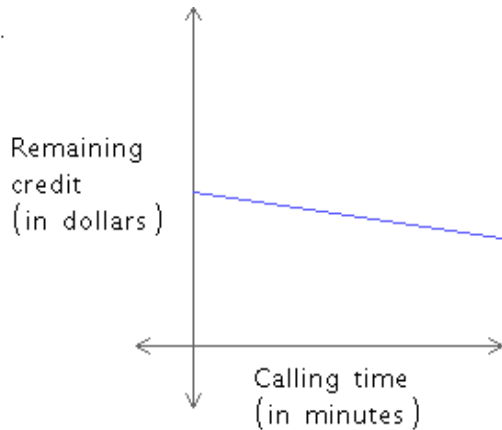
1. A rectangle is placed around a semicircle as shown below. The width of the rectangle is 5 cm .

Find the area of the shaded region. Use the value 3.14 for  $\pi$  , and do not round your answer. Be sure to include the correct unit in your answer.



2. Leila purchased a prepaid phone card for \$25 . Long distance calls cost 23 cents a minute using this card. Leila used her card only once to make a long distance call. If the remaining credit on her card is \$14.65 , how many minutes did her call last?
3. Lamar rented a truck for one day. There was a base fee of \$20.99 , and there was an additional charge of 76 cents for each mile driven. Lamar had to pay \$178.31 when he returned the truck. For how many miles did he drive the truck?

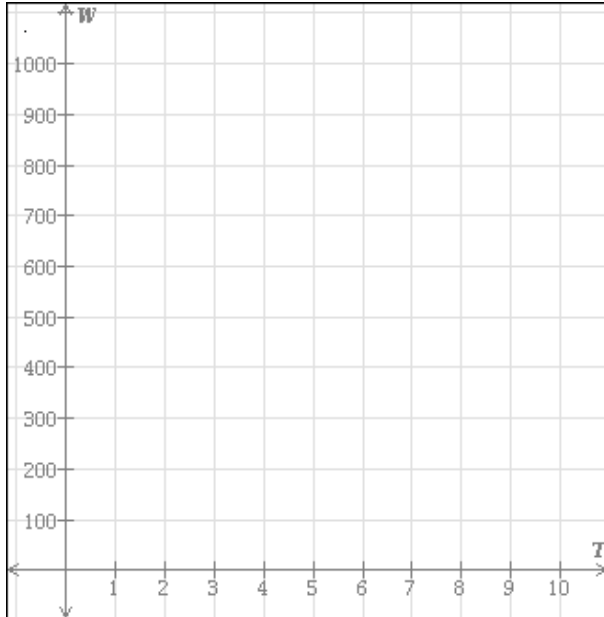
4. The credit remaining on a phone card (in dollars) is a linear function of the total calling time made with the card (in minutes). The remaining credit after 28 minutes of calls is \$26.64 , and the remaining credit after 61 minutes of calls is \$22.68 . What is the remaining credit after 67 minutes of calls?



5. Mr. Butler has a class of 16 students. He can spend \$24 on each student to buy math supplies for the year. He first buys all of his students calculators, which costs a total of \$99.20 . After buying the calculators, how much does he have left to spend on each student?

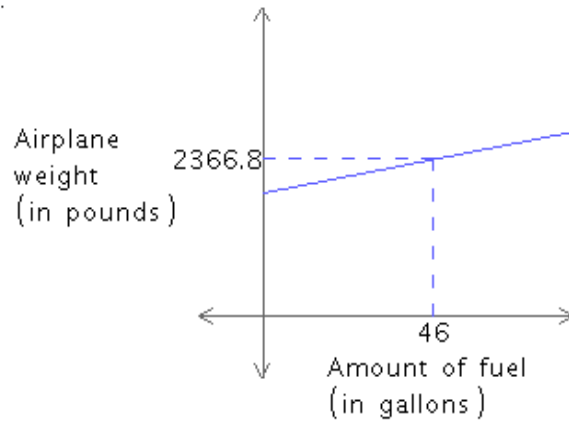
6. Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 35 liters per minute. There are 700 liters in the pond to start.

Let  $W$  represent the amount of water in the pond (in liters), and let  $T$  represent the number of minutes that water has been added. Write an equation relating  $W$  to  $T$ , and then graph your equation using the axes below.



7. Suppose that the weight (in pounds) of an airplane is a linear function of the total amount of fuel (in gallons) in its tank. When graphed, the function gives a line with a slope of  $5.8$ . See the figure below.

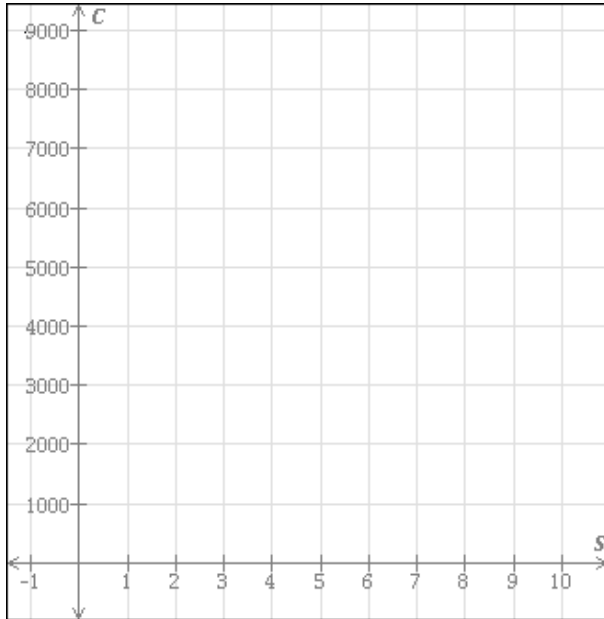
With 46 gallons of fuel in its tank, the airplane has a weight of 2366.8 pounds. What is the weight of the plane with 74 gallons of fuel in its tank?



8. Elsa just bought a refrigerator for \$477. She paid \$95.40 in a down payment and will pay the rest in 6 equal installments. How much does she need to pay for each installment?

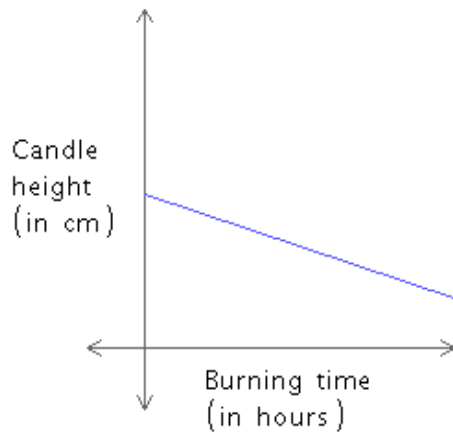
9. The Sugar Sweet Company is going to transport its sugar to market. It will cost \$6075 to rent trucks, and it will cost an additional \$225 for each ton of sugar transported.

Let  $C$  represent the total cost (in dollars), and let  $S$  represent the amount of sugar (in tons) transported. Write an equation relating  $C$  to  $S$ , and then graph your equation using the axes below.

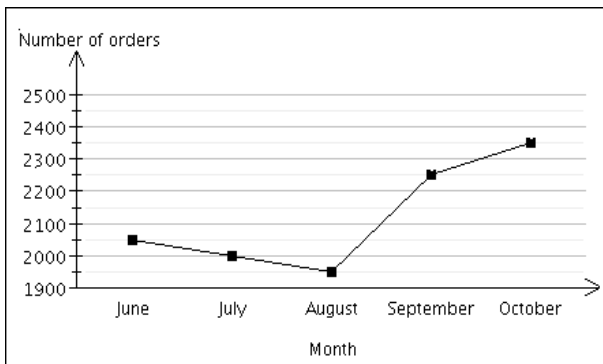


10. Lamar has scored 99, 71, 58, and 73 on his previous four tests. What score does he need on his next test so that his average (mean) is 79?
11. The price of a notebook was \$3.70 yesterday. Today, the price fell to \$3.20. Find the percentage decrease. Round your answer to the nearest tenth of a percent.
12. A suit is on sale for 33% off. The sale price is \$335.
- What is the regular price?

13. Suppose that the height (in centimeters) of a candle is a linear function of the amount of time (in hours) it has been burning. After 5 hours of burning, a candle has a height of 19.5 centimeters. After 23 hours of burning, its height is 10.5 centimeters. What is the height of the candle after 17 hours?



14. The graph below shows the numbers of orders received by a company for five months.



- (a) What was the least number of orders in a month?  
(b) When did the number of orders have the greatest increase?
15. Charmaine bought a table on sale for \$639 . This price was 29% less than the original price.  
What was the original price?

16. The price of a cup of coffee has risen to \$2.70 today. Yesterday's price was \$2.45 . Find the percentage increase. Round your answer to the nearest tenth of a percent.
17. The price of a technology stock has risen to \$9.83 today. Yesterday's price was \$9.72 . Find the percentage increase. Round your answer to the nearest tenth of a percent.
18. A washer and a dryer cost \$804 combined. The washer costs \$96 less than the dryer. What is the cost of the dryer?
19. At the city museum, child admission is \$5.30 and adult admission is \$8.80 . On Wednesday, 154 tickets were sold for a total sales of \$1050.70 . How many adult tickets were sold that day?
20. At a sale this week, a desk is being sold for \$703 . This is a 26% discount from the original price.  
What is the original price?

21. The table gives the temperature (in  $^{\circ}\text{F}$ ) in five cities at 6 a.m. on the same day. Use the table to answer the questions.

| City      | Temperature ( $^{\circ}\text{F}$ ) |
|-----------|------------------------------------|
| Santa Fe  | 74                                 |
| Milwaukee | -6                                 |
| Winnipeg  | -16                                |
| Nome      | -28                                |
| Dayton    | 48                                 |

- (a) How much higher was the 6 a.m. temperature in Dayton than in Winnipeg?

$^{\circ}\text{F}$  higher

- (b) By noon, the temperature in Nome had risen by  $12^{\circ}\text{F}$ .  
What was the temperature there at noon?

$^{\circ}\text{F}$



22. Raina is riding in a bike race that goes through a valley and a nearby mountain range.

The table gives the altitude (in feet above sea level) for the five checkpoints in the race. Use the table to answer the questions.

| Checkpoint | Altitude<br>(feet above sea level) |
|------------|------------------------------------|
| 1          | 1,347                              |
| 2          | -136                               |
| 3          | -177                               |
| 4          | 2,318                              |
| 5          | -62                                |

(a) The top of a hill rises 160 feet above Checkpoint 3. What is the altitude of the top of the hill?

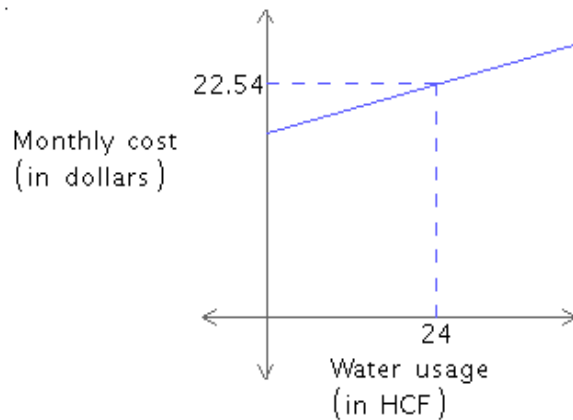
ft

(b) How much lower is Checkpoint 2 than Checkpoint 5?

ft lower

23. Suppose that a household's monthly water bill (in dollars) is a linear function of the amount of water the household uses (in hundreds of cubic feet, HCF). When graphed, the function gives a line with a slope of  $1.75$ . See the figure below.

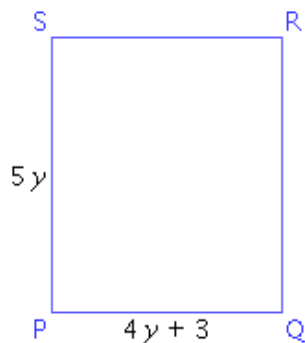
If the monthly cost for 24 HCF is \$22.54, what is the monthly cost for 20 HCF?



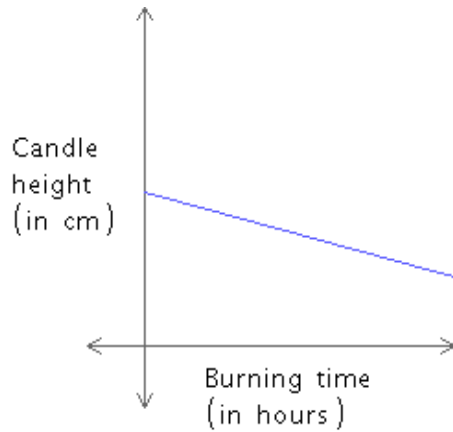
24. Ravi has scored 90, 90, 91, and 92 on his previous four tests. What score does he need on his next test so that his average (mean) is 88?

25. The perimeter of the rectangle below is 132 units. Find the length of side  $\overline{PS}$ .

Write your answer without variables.

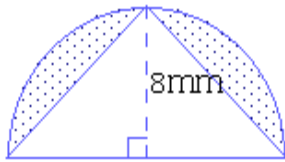


26. Suppose that the height (in centimeters) of a candle is a linear function of the amount of time (in hours) it has been burning. After 6 hours of burning, a candle has a height of 19.2 centimeters. After 23 hours of burning, its height is 14.1 centimeters. What is the height of the candle after 11 hours?



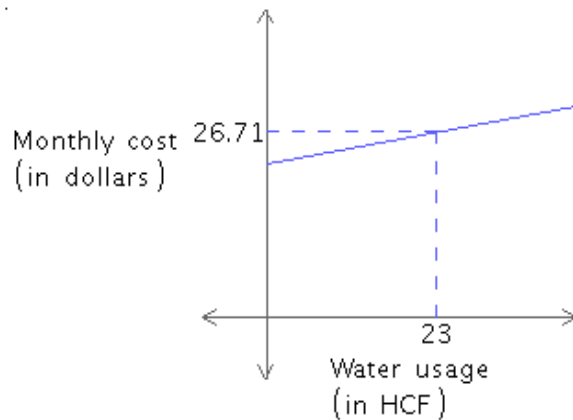
27. A triangle is placed in a semicircle with a radius of 8 mm, as shown below.

Find the area of the shaded region. Use the value 3.14 for  $\pi$ , and do not round your answer. Be sure to include the correct unit in your answer.



28. Suppose that a household's monthly water bill (in dollars) is a linear function of the amount of water the household uses (in hundreds of cubic feet, HCF). When graphed, the function gives a line with a slope of  $1.45$ . See the figure below.

If the monthly cost for 23 HCF is \$26.71, what is the monthly cost for 28 HCF?



29. Abdul's Coffee Shop makes a blend that is a mixture of two types of coffee. Type A coffee costs Abdul \$5.85 per pound, and type B coffee costs \$4.65 per pound. This month's blend used three times as many pounds of type B coffee as type A, for a total cost of \$514.80. How many pounds of type A coffee were used?

30. The table gives the temperature (in  $^{\circ}\text{F}$ ) in five cities at 6 a.m. on the same day. Use the table to answer the questions.

| City      | Temperature ( $^{\circ}\text{F}$ ) |
|-----------|------------------------------------|
| Phoenix   | 81                                 |
| Seattle   | 41                                 |
| Houston   | 58                                 |
| Milwaukee | -15                                |
| Fairbanks | -24                                |

- (a) How much lower was the 6 a.m. temperature in Fairbanks than in Houston?

$^{\circ}\text{F}$  lower

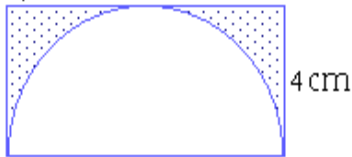
- (b) By noon, the temperature in Milwaukee had risen by  $24^{\circ}\text{F}$ .  
What was the temperature there at noon?

$^{\circ}\text{F}$

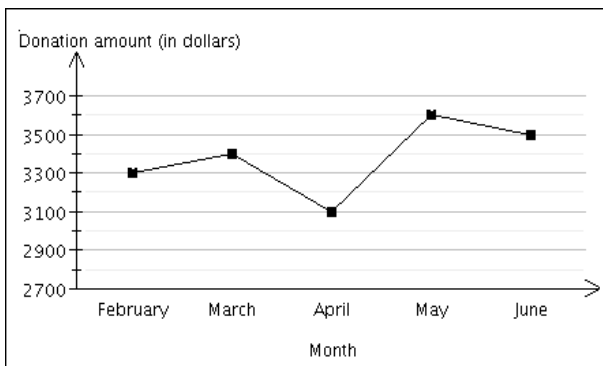
31. A total of 584 tickets were sold for the school play. They were either adult tickets or student tickets. The number of student tickets sold was three times the number of adult tickets sold. How many adult tickets were sold?

32. A rectangle is placed around a semicircle as shown below. The width of the rectangle is 4 cm .

Find the area of the shaded region. Use the value 3.14 for  $\pi$  , and do not round your answer. Be sure to include the correct unit in your answer.



33. The graph below shows how much money was given to a charity over five months.

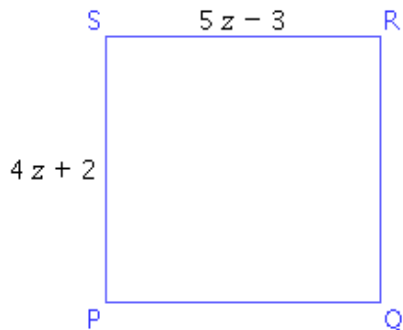


- (a) What was the greatest donation amount in a month?
- (b) When did the greatest increase in donations occur?

34. On Friday, a local hamburger shop sold a combined total of 308 hamburgers and cheeseburgers. The number of cheeseburgers sold was three times the number of hamburgers sold. How many hamburgers were sold on Friday?

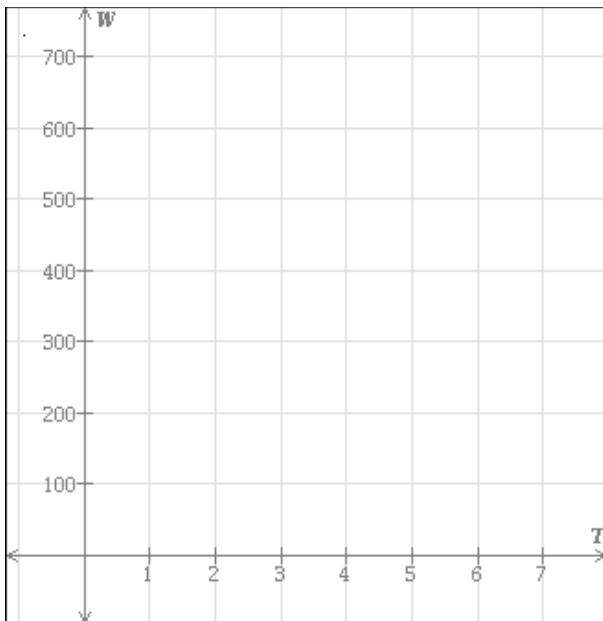
35. The perimeter of the rectangle below is 142 units. Find the length of side  $\overline{QR}$ .

Write your answer without variables.



36. Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 30 liters per minute. There are 500 liters in the pond to start.

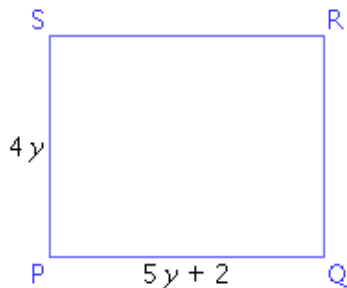
Let  $W$  represent the amount of water in the pond (in liters), and let  $T$  represent the number of minutes that water has been added. Write an equation relating  $W$  to  $T$ , and then graph your equation using the axes below.



37. A Web music store offers two versions of a popular song. The size of the standard version is 2.2 megabytes (MB). The size of the high-quality version is 4.8 MB. Yesterday, there were 1050 downloads of the song, for a total download size of 4000 MB. How many downloads of the high-quality version were there?

38. The perimeter of the rectangle below is 130 units. Find the length of side  $\overline{RS}$ .

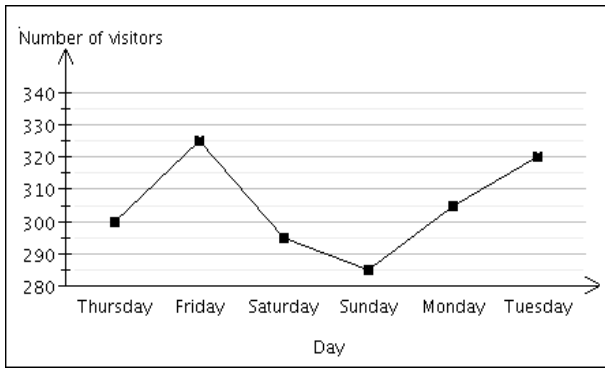
Write your answer without variables.



39. Frank has scored 28, 19, 20, 26, and 22 points in his five basketball games so far. How many points does he need to score in his next game so that his average (mean) is 24 points per game?
40. Amanda purchased a prepaid phone card for \$15. Long distance calls cost 6 cents a minute using this card. Amanda used her card only once to make a long distance call. If the remaining credit on her card is \$13.92, how many minutes did her call last?
41. Today, 9 friends went out for lunch. Their total bill was \$48.06, including tax and gratuity. One of them ordered only soda and needed to pay only \$1.18. The other 8 friends ordered the same daily special. How much did each of the other friends need to pay?



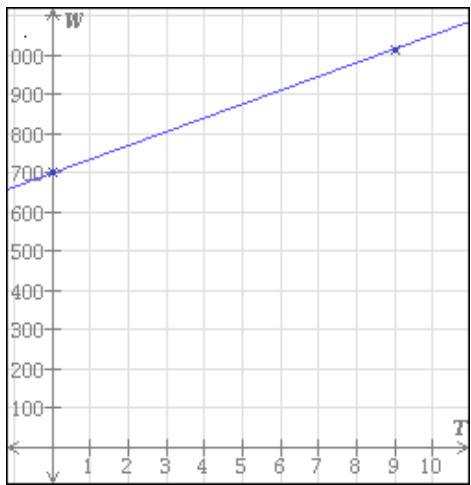
42. The graph below shows the numbers of visitors at a museum over six days.



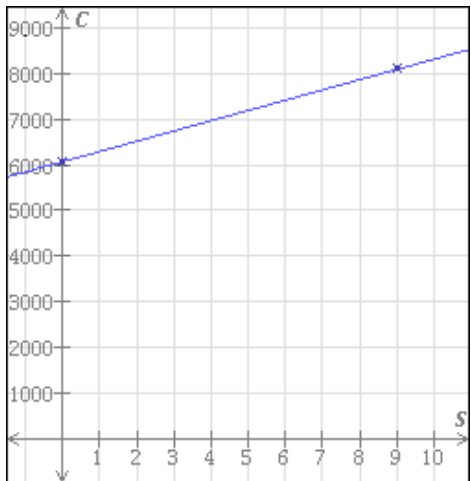
- (a) What was the least number of visitors in a day?
- (b) When did the number of visitors have the greatest decrease?

# Final Word Problem Practice #1 Answers for class Beginning Algebra / Math 100 Fall 2013 – 506

1.  $10.75 \text{ cm}^2$
2. 45 minutes
3. 207 miles
4. \$21.96
5. \$17.80
6.  $W = 700 + 35T$



7. 2529.2 pounds
8. \$63.60
9.  $C = 6075 + 225S$



10. 94
11. 13.5%

12. \$500
13. 13.5 centimeters
14. (a) What was the least number of orders in a month?  
1950 orders
- (b) When did the number of orders have the greatest increase?  
*August to September*
15. \$900
16. 10.2%
17. 1.1%
18. \$450
19. 67 tickets
20. \$950
21. (a) How much higher was the 6 a.m. temperature in Dayton than in Winnipeg?  
64 °F higher
- (b) By noon, the temperature in Nome had risen by 12 °F.  
What was the temperature there at noon?  
-16 °F
22. (a) The top of a hill rises 160 feet above Checkpoint 3.  
What is the altitude of the top of the hill?  
-17 ft
- (b) How much lower is Checkpoint 2 than  
Checkpoint 5?  
74 ft lower
23. \$15.54
24. 77
25.  $PS = 35$
26. 17.7 centimeters
27. 36.48 mm<sup>2</sup>
28. \$33.96

29. 26 pounds

30. (a) How much lower was the 6 a.m. temperature in Fairbanks than in Houston?  
82 °F lower

(b) By noon, the temperature in Milwaukee had risen by 24 °F.  
What was the temperature there at noon?  
9 °F

31. 146 adult tickets

32. 6.88 cm<sup>2</sup>

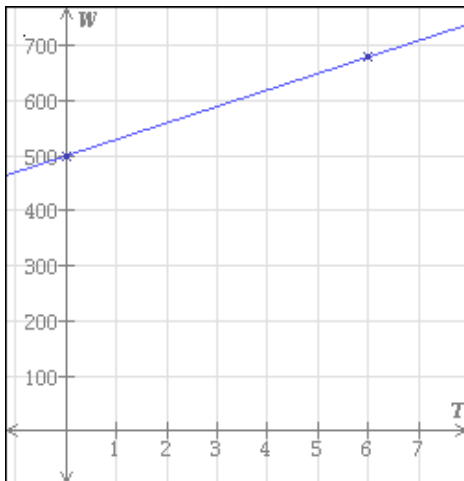
33. (a) What was the greatest donation amount in a month?  
\$3600

(b) When did the greatest increase in donations occur?  
April to May

34. 77 hamburgers

35.  $QR = 34$

36.  $W = 500 + 30T$



37. 650 downloads

38.  $RS = 37$

39. 29 points

40. 18 minutes

41. \$5.86

**42.** (a) What was the least number of visitors in a day?

285 visitors

(b) When did the number of visitors have the greatest decrease?

Friday to Saturday