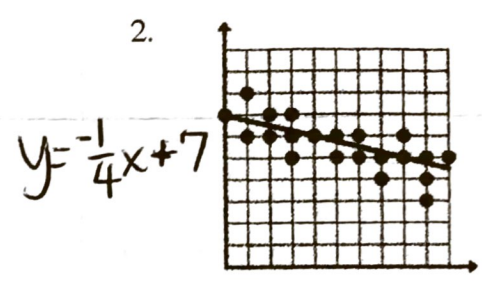
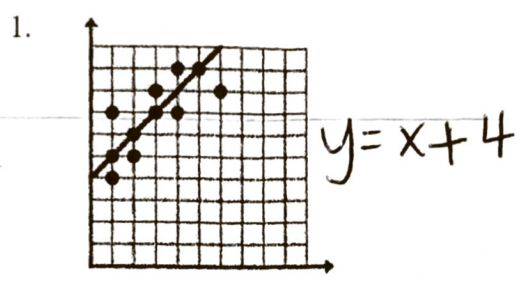


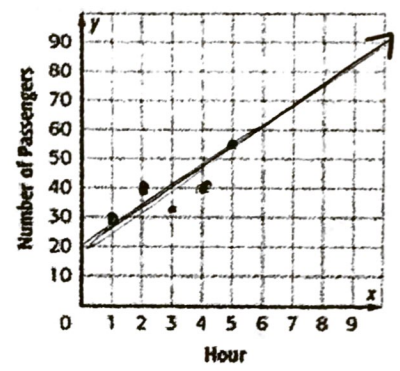
Write the equation of the line of best fit for each scatter plot.



3. **BOATING** Rehan's yacht holds 70 passengers. Each hour he stops at the marina to let some passengers off and on. The table shows how many passengers are on board during each hour of boating.

Hour	1	2	3	4	5
Passengers	30	40	32	40	55

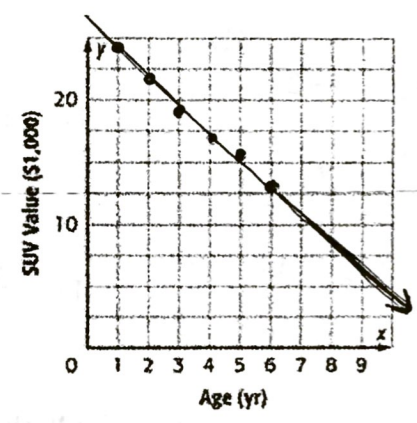
Construct a scatter plot. Then draw the line of best fit.



4. **RESALE VALUE** The table shows the resale value of six SUVs plotted against the age of the vehicle.

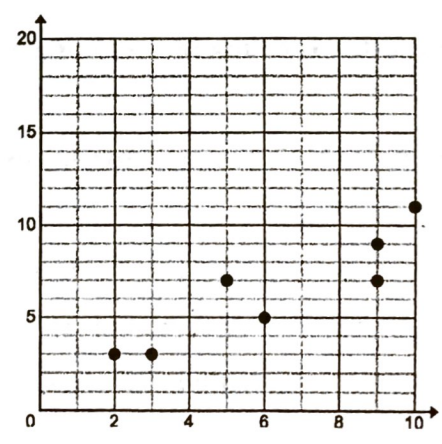
Age (yr)	1	2	3	4	5	6
Value (\$1,000)	24	22	19	17	16	13

Construct a scatter plot. Then draw the line of best fit.

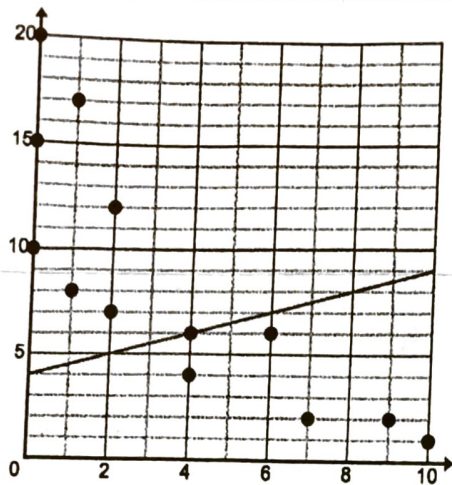


5. Which equation is the line of best fit for the following scatter plot?

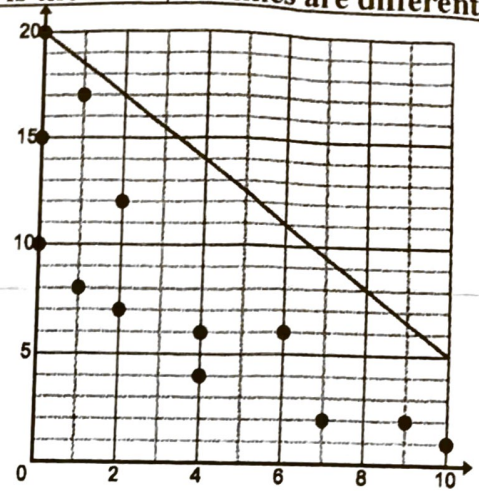
- A. $y = \frac{3}{4}x + 1$
- B. $y = \frac{3}{4}x + 4$
- C. $y = \frac{1}{5}x + 2$
- D. $y = \frac{1}{5}x + 6$



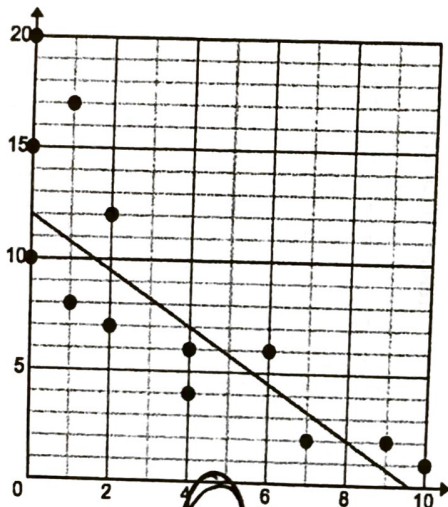
6. Which line is the line of best fit? (Each scatter plot is the same; the lines are different.)



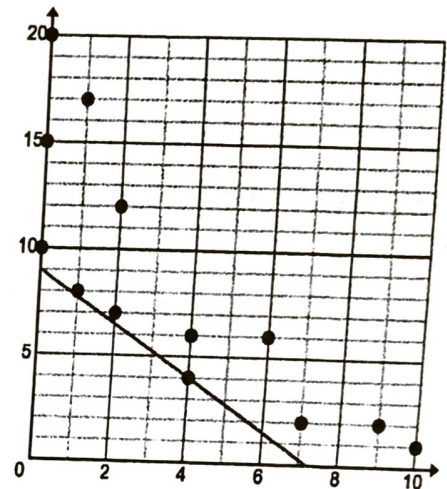
A



B



C



D

7. $\frac{x+4}{7} = -2$

$x = -18$

8. $4t - 3 + 6t = -33$

$t = -3$

9. $\frac{x}{12} - 5 = -3$

$x = 24$

10. $-3(2y+1) = 27$

$y = -5$

11. $2n + n - 3(n+4) = 24$

NO SOLUTION

12. $\frac{2}{3}x + 2 = 3$ $x = \frac{3}{2}$

13. What is the formula for the Pythagorean Theorem?

$a^2 + b^2 = c^2$

14. What is the formula for area of a circle?

$A = \pi \cdot r^2$

15. What are the 2 formulas for circumference of a circle?

$C = 2 \cdot \pi \cdot r$ or $\pi \cdot d$

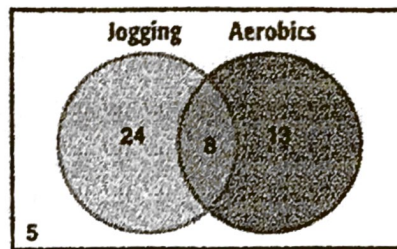
16. What is the formula for the area of a triangle?

$A = \frac{b \cdot h}{2}$

17. What is the formula for the area of a rectangle?

$A = l \cdot w$

18. **Use Math Tools** The Venn diagram shows the number of students that exercise in different ways. Construct a two-way table that displays the data. Find and interpret the relative frequencies by column. Not Included



	Jogging	No Jogging	Total
Aerobics	8	13	21
No Aerobics	24	5	29
Total	32	18	50

19. The two-way table shows the number of students that message on a daily basis. Find and interpret the relative frequencies of students in the survey by rows.

	Text Message	Instant Message	Total
7 th graders	59; 70%	25; 30%	84; 100%
8 th graders	59; 59%	41; 41%	100; 100%
Total	118; 64%	66; 36%	184; 100%

(Example 2)
• 64% of all students text.

• 36% of all students I.M.

20. What is the formula for the volume of a sphere?

$$V = \frac{4 \cdot \pi \cdot r^3}{3}$$

Identify the slope and y-intercept of each equation. Then sketch the graph of each line.

- 70% of 7th graders send texts.
- 30% of 7th graders send I.M's.
- 59% of 8th graders send texts.
- 41% of 8th graders send I.M's.

Write each equation in slope-intercept form. Then sketch the graph of each line.

21. $y = 3x - 2$

22. $x = 2$

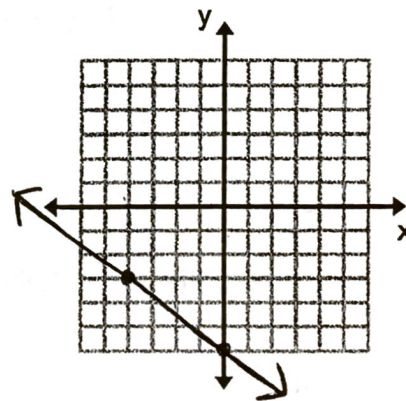
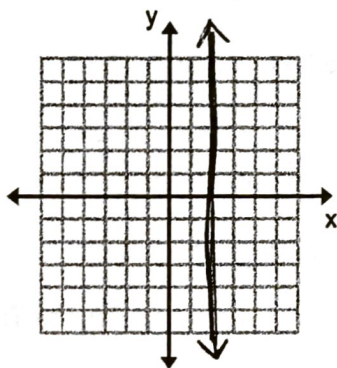
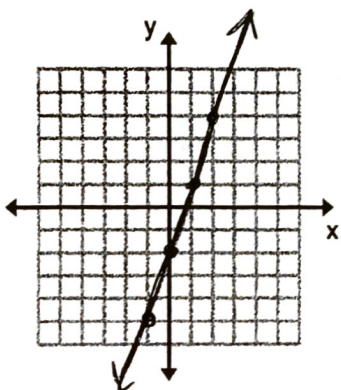
23.

$3x + 4y = -24$

Slope: $\frac{3}{1}$
Y int. -2

Slope: undefined
Y int. NONE

$y = -\frac{3}{4}x - 6$



Write the equation of the line with the given information. Write your answer in *slope-intercept* form.

24. Vertical line passing through $(-9, 3)$

25. Horizontal line passing through $(-3, 10)$

$x = -9$

$y = 10$

Draw a line of best fit on the scatter plot at the right.

26. Use your line to predict the number of assisted tackles a player will have if he has 12 solo tackles.

about 45 assisted tackles

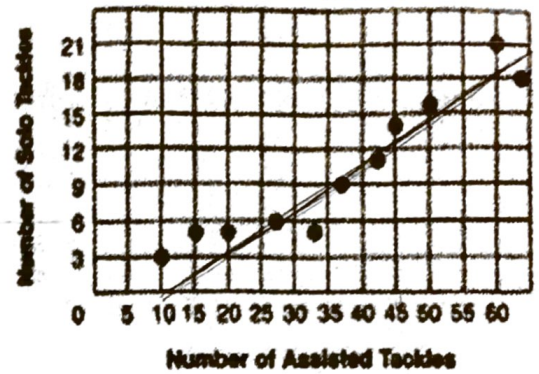
27. Use your line to predict the number of solo tackles a player will have if he has 55 assisted tackles.

between 15 and 18 solo tackles

28. Use your line to predict the number of assisted tackles a player will have if he has 21 solo tackles.

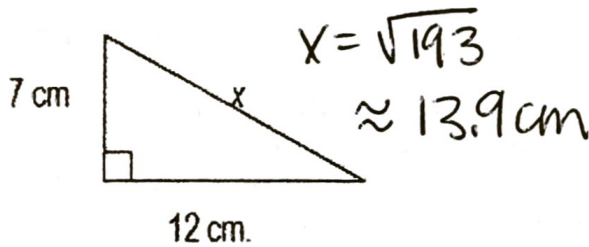
about 65 assisted tackles

RELATIONSHIP OF SOLO AND ASSISTED TACKLES

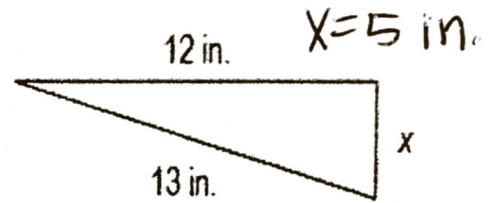


Find the value of x . Give your answer as a simplified radical AND as a decimal rounded to the nearest tenth.

29.



30.



31. What is the value of -4^2 ?

- a) -8 b) 8 **c) -16** d) 16

32. The cost of attending a banquet is \$100 plus an additional \$6 per person that attends. If n people attend the banquet, and c is the total cost of the banquet, which expression models the situation?

- a) $\$100 = 6n$ **b) $\$100 + 6n = c$** c) $\$100 + 6c = n$ d) $\$100n + 6 = c$

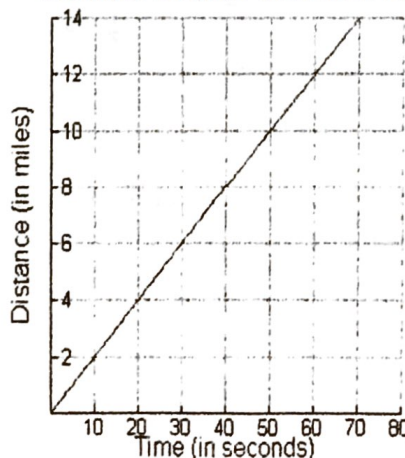
33. A bus excursion costs \$275 plus \$12 for each person making reservations. The total bill is \$779. How many people made reservations?

- a) 42** b) 43 c) 44 d) 45

34. Look at the graph to the right. What does the slope of the line mean?

- a) Sound travels 2 miles in 10 seconds.**
b) Sound travels 1 mile in 1 second.
c) Sound travels 10 miles in 2 seconds.
d) Sound travels 12 miles in 1 second.

Distance Sounds Travels in Air



35. Which of the following is the function rule (equation) that models the relationship shown in the table below?

a) $y = 3x + 2$

b) $y = 2x + 3$

c) $y = \frac{1}{2}x + 2$

d) $y = \frac{1}{2}x + 3$

x	y
0	3
2	7
5	13
6	15

Simplify each expression. Use only positive exponents.

36. $\sqrt{18}$
 $3\sqrt{2}$
37. $\sqrt{\frac{25}{36}}$
 $\frac{5}{6}$
38. $(8x^4y^3)^2$
 $64x^8y^6$
39. $\sqrt{-324}$
NO Real answer
40. $\frac{3^2}{t^{-3}}$
 $9t^3$
41. $\frac{10x^3y^9}{2x^2y^7}$
 $5xy^2$
42. $\frac{10^3}{7^{-2}}$
 $10^3 \cdot 7^2$
OR 49,000
43. $\sqrt{\frac{8}{9}}$
 $\frac{2\sqrt{2}}{3}$
44. $(-4x^2)(-16x^4y)$
 $64x^6y$
45. $-\sqrt{121}$
-11
46. $(-5)^2$
25
47. m^{-5}
 $\frac{1}{m^5}$
48. $b^5b^4b^{-9}$
1
49. $\left(\frac{-5x^2}{y^{-3}z}\right)^{-2}$
 $\frac{z^2}{25x^4y^6}$
50. $(-45^2m^3n^{-3}p^3)^0$
1
51. $(x^4)^9$
 x^{36}
52. $\sqrt[3]{27}$
3
53. $\frac{5^2 \cdot 2^3}{10^2}$
2

54. Place the letter representing each number in the field below depending on if the number is Rational or Irrational. Two of them have been done for you.

A) $\frac{1}{3}$

B) 0.6519483542888

C) 18

D) -37

E) $\frac{2}{7}$

F) $\sqrt{8}$

G) 0.112113114...

H) 0.25235

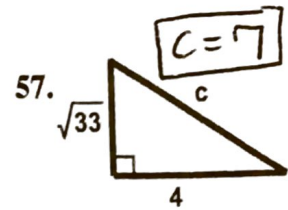
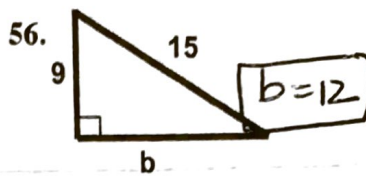
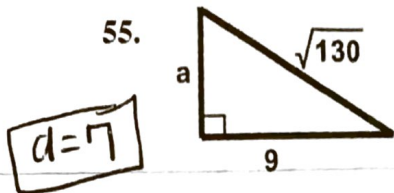
I) 2π

J) $-2\frac{4}{9}$

K) $\sqrt{25}$

<u>Rational</u>	<u>Irrational</u>
C	F
A B D E H J K	G I

Find the lengths of the missing sides. Write your answer as a reduced radical or integer.



Find the missing length. Write your answer as a decimal rounded to the nearest tenth.

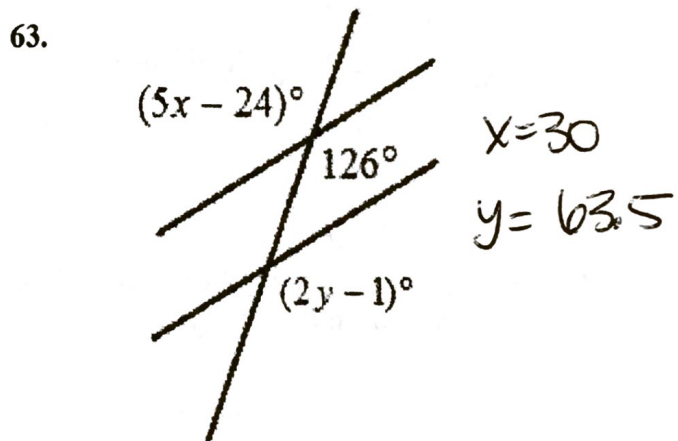
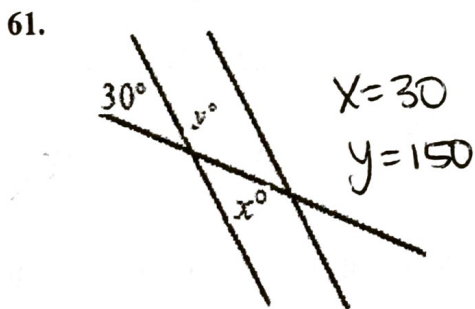
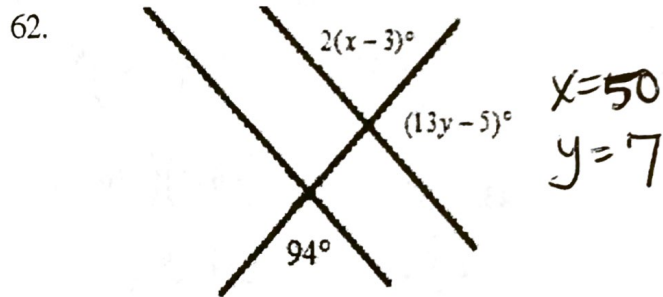
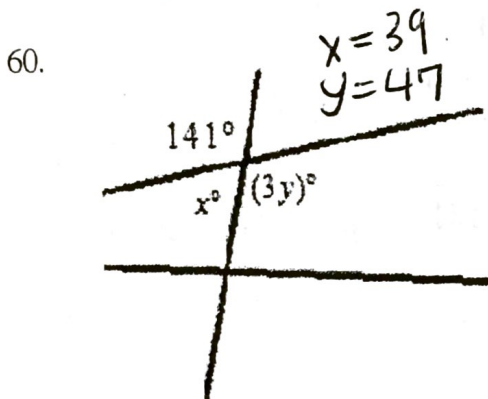
58. The foot of a ladder is placed 6 feet from a wall. If the top of the ladder rests 8 feet up on the wall, how long is the ladder?

$x = 10 \text{ feet}$

59. You need to construct a ramp to roll a cart from your garage into the back of your truck. The truck is 8 feet from the garage. The back of the truck is 3 feet above the ground. How long does the ramp's surface have to be?

8.5 feet

Solve for x and y.



64. What is the equation for the volume of a cone?

$$V = \frac{\pi r^2 h}{3}$$

Find the rate of change.

65. Calories burned.

Time (minutes)	40	60	80
Calories burned	500	750	1000

$\frac{12.5 \text{ calories burned}}{1 \text{ minute}}$

66. Josh started out with \$12.50. After working for 4 hours he had \$60.50 total. How much did Josh receive per hour?

$\$12 \text{ per hour}$

67. Cost of renting a movie.

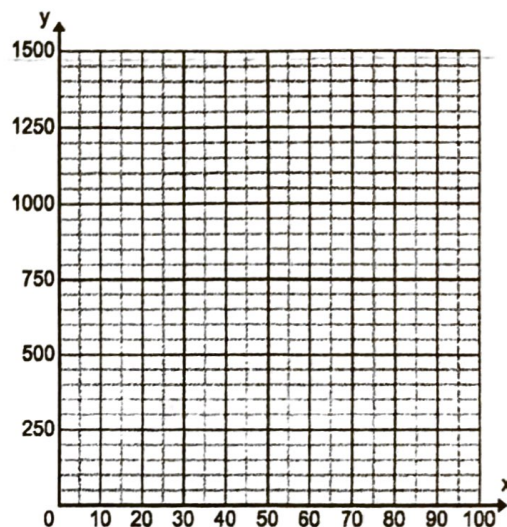
Time (days)	Total Cost (dollars)
4	6.00

$\frac{\$2.25}{1 \text{ day}}$

68. A bank account starts with \$1,500 in it. You withdraw (take out) \$15 per day. Graph the situation and write an equation that models how much money is in the bank account (y) depending on the number of days that have past (x).

X	Y
0	1,500
1	1,485
2	1,470
3	1,455
4	1,440

EQUATION:
 $y = -15x + 1500$



69.

- You and a group of friends are going the state fair. You have \$12 for food for your group. Tickets cost \$6.00 each. Write an equation that models how much it will cost for your group to go to the fair (y) depending on how many people go (x).

$$6x + 12 = y$$

70. You have \$1200 in your bank account. You deposit (put money in) \$320 from your job into your account every week. Write an equation the models how much money is in your account (y) depending on how many weeks you work (x).

Rate of Change:

\$320

Initial Value:

\$1200

Equation:

$$y = 320x + 1200$$

71. Chloe competes in a jump rope competition. Her average jumping rate is 225 jumps per minute.

- A. Identify the constant rate of change for the situation. 225
- B. Identify the initial value for the situation. 0
- C. Write the equation to model the situation where x represents time, in minutes, and y is the total number of jumps.

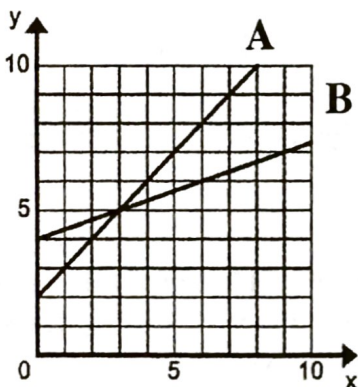
$$y = 225x$$

72. The table shows the cost to ride the rides at Lagoon for one day, where x represents the number of rides you ride on and y represents the total cost.

Number of Rides (x)	1	4	9	10	12
Cost, \$ (y)	45.95	45.95	45.95	45.95	45.95

- A. Identify the constant rate of change for the situation: $\$0$ per ride
- B. Identify the initial value for the situation. $(0, \$45.95)$
- C. Write the equation to model the situation where x represents the number of rides and y is the total cost.

$$y = 0x + 45.95$$



73. Which function has the least rate of change?

B

Which function has the greatest initial value?

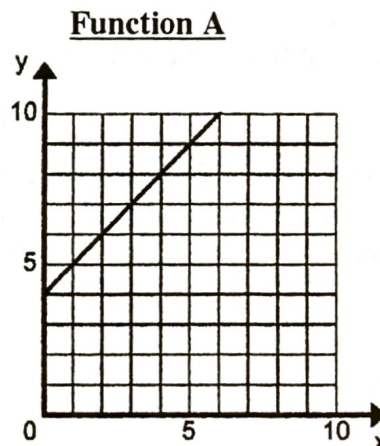
B

74. Which function has the greatest rate of change? B

Which function has the greatest initial value? A

Function B

$$y = 2x - 3$$



75. What is the volume formula for a cylinder? $V = \pi r^2 h$

Evaluate each expression. Write your answer in scientific notation. You may use a calculator.

76. $\frac{1.5 \times 10^6}{4.8 \times 10^3} = 3.125 \times 10^2$

77. $(5.4 \times 10^{-3})(6.8 \times 10^{-4}) = 3.672 \times 10^{-6}$

78. $(6.8 \times 10^{-12}) + (7 \times 10^{-10}) = 7.068 \times 10^{-10}$

79. $(2 \times 10^{29}) - (7 \times 10^{26}) = 1.993 \times 10^{29}$