

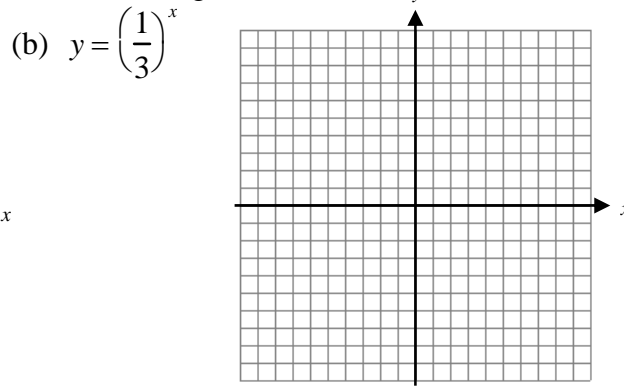
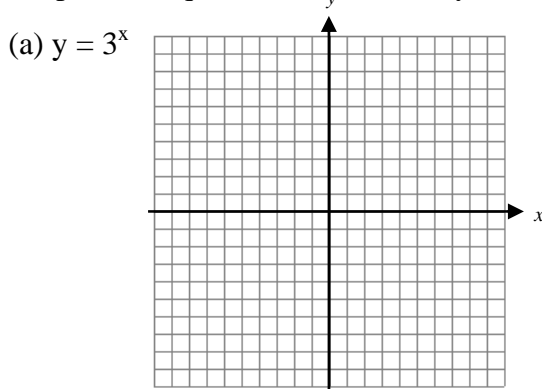
Non-Calculator

- 2.2 1. Find the slope of the line passing through the points (-5, -4) and (-3, 7).
2. Find the slope-intercept equation of the line passing through the points (-5, -3) and (-2, -6).
- 2.3 3. Write a point-slope equation of the line passing through (-1, -8) and (4, -6).

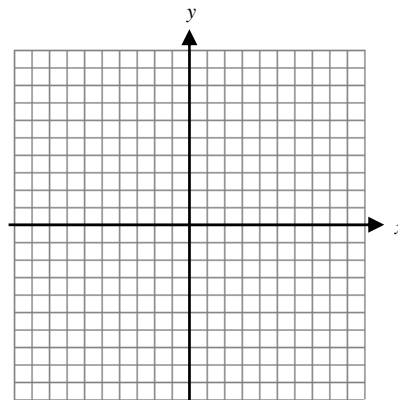
In questions 4 through 8, simplify completely using the properties of exponents. Where applicable, rewrite your answer(s) using only positive exponents.

- 3.2 4. $(7)^{-2}$ 5. $(9)^{\frac{-3}{2}}$ 6. $\frac{25^{\frac{3}{4}}}{25^{\frac{1}{4}}}$ 7. $3^{\frac{3}{2}} \cdot 3^{\frac{-7}{2}}$ 8. $\left(100^{\frac{7}{3}}\right)^{\frac{3}{2}}$

- 3.3 9. Graph each equation. Then identify the domain and range:



- 2.2 10. Graph: $y = \frac{5}{2}x + 3$. Identify the domain and range.



In questions 11 and 12, evaluate.

4.2 11. $\log_5 125$

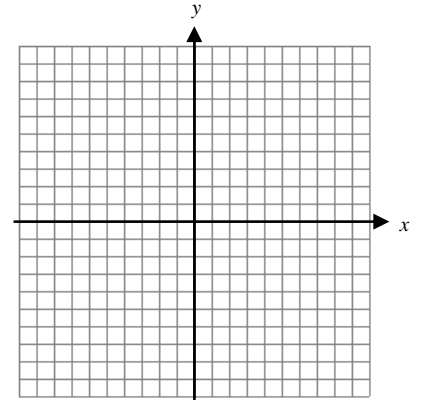
12. $\ln e^{-5}$

4.2 13. Write the equation $3^4 = 81$ in logarithmic form.

14. Write the equation $\log_{125} 25 = \frac{2}{3}$ in exponential form.

5.2 15. For the equation: $y = -(x + 3)^2 - 1$

- Find the vertex.
- Write an equation for the line of symmetry.
- Which way does the graph open?
- Identify whether the graph has a maximum or minimum value.
- What is the maximum or minimum value?
- Graph the function.
- Identify the domain and range.



5.3 16. Use the function $y = (3x + 21)(x - 1)$ What are the x-intercepts of the function's graph? What are the coordinates of the graph's vertex?

In questions 40 and 41, write in vertex form.

5.4 17. $y = x^2 + 4x + 1$.

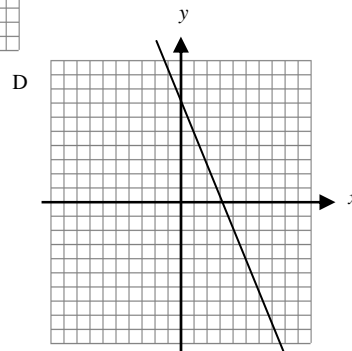
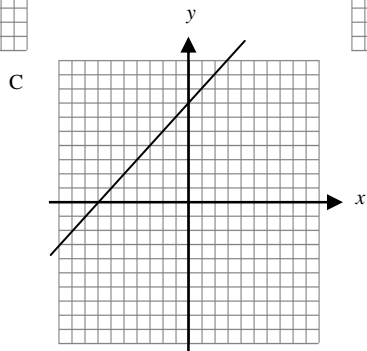
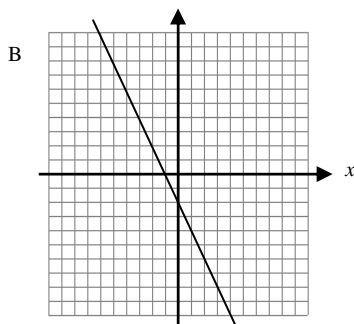
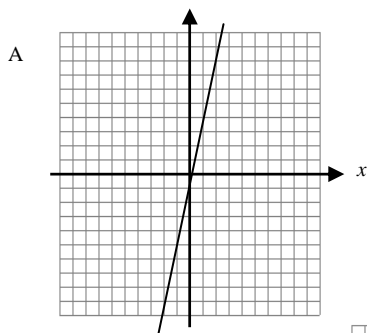
18. $y = 3x^2 - 6x + 1$.

5.5 19. Solve using the quadratic formula: $3x^2 + 7x - 20 = 0$

Calculator Allowed

Round any decimal answers to the nearest hundredth.

2.1 21. Identify the graph in which y varies directly as x .

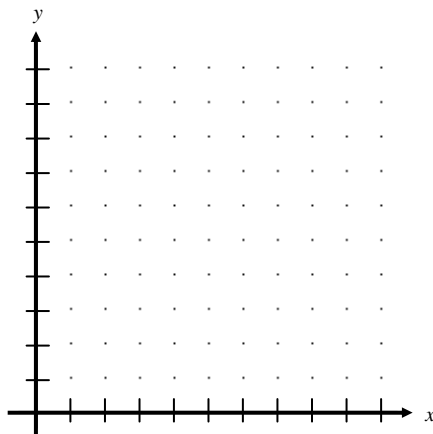


2.1 22. For the equation $y = 5x$, does y vary directly with x ? Answer yes or no.

2.1 23. Find the domain and range of the function $f(x) = 8x + 5$ for $x \geq 3$.

2.4 24. The table below gives the number of hours a local baseball team spent on batting practice during each week and the number of hits they had in games that weekend.

# of hours	# of hits
0	2
3	4
5	5
7	8
10	10

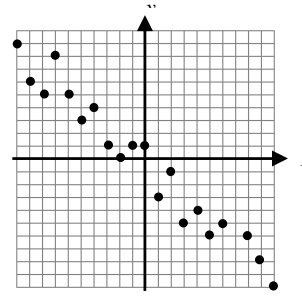


a) Show that the data have a linear relationship by making a scatter plot and drawing a line of best fit. Find an equation of the line.

b) Use your equation to predict the number of hits following a week when 20 hours were spent on batting practice.

2.5 c) What is the correlation coefficient?

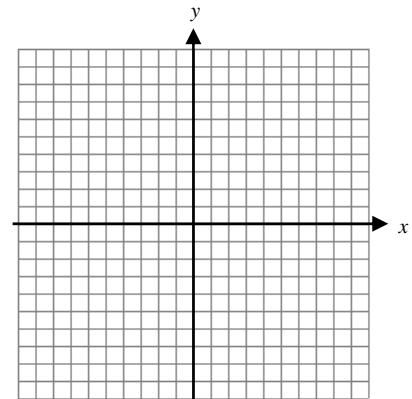
- 2.5 25. What type of relationship (positive, negative, or None) is shown by the scatter plot?



- 3.3 26. A medication is eliminated from a person's bloodstream at a rate of 10% per hour. Suppose a tablet contains 30 mg of medication. Write an equation for the amount of the medication in the bloodstream after x hours. How many hours will it take for half the tablet to be eliminated?
27. A computer programmer earned a yearly salary of \$40,000 in 1990 and averaged a 4% raise each year after that time.
- Find the doubling time for the programmer's salary.
 - Calculate the programmer's salary in 1998.
- 3.4 28. If \$3900 is deposited in an account at the bank and earns 6% annual interest, compounded continuously, what is the amount in the account after 4 years?
- 3.5 29. In one state, the Real Estate Board estimates that the median cost of housing will increase exponentially according to the data in this table.

Years since 1990	Median cost (in dollars)
0	77,000
1	79,000
2	83,000
3	90,000
4	99,000

- Find the exponential regression equation for this data.
 - Estimate the median cost of housing in the year 2005 using your equation for part a.
- 4.1 30. Graph $y = -2x + 5$ and its inverse in the same coordinate plane. Then, find the equation for the inverse.



4.3 31. Express in terms of logarithms of x , y , and z : $\log_a \frac{4xy^2}{z^5}$

32. Express in terms of logarithms of m , n , and h : $\log_a m^6 nh^3$

In questions 33 and 34, write as a single logarithm.

4.3 33. $7 \log_b x + 5 \log_b y$

34. $4 \log_p 2 - \frac{1}{3} \log_p 64$

4.4 35. Evaluate $\log_5 130$

In questions 36 through 39, solve.

4.4 36. $\log_4(x+6) - \log_4 x = 2$

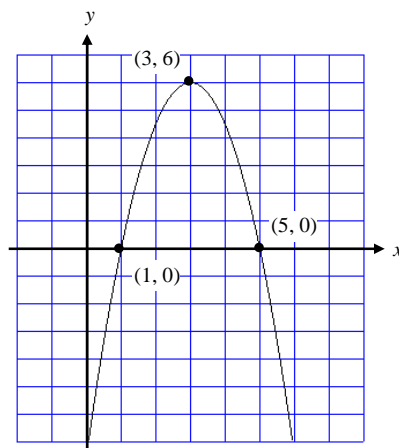
37. $3e^x = 5.7$

5.1 38. $-3x^2 = -36$

39. $2x^2 - 5 = 93$

5.2 40. Write an equation in vertex form for a parabola that has vertex $(3, 4)$ and passes through the point $(1, 2)$.

5.3 41. Write an equation for the parabola shown at right.



- 5.4 42. The equation $h = -16t^2 + 40t + 5$ gives the height h , in feet, of a baseball as a function of time, t , in seconds, after it is hit. What is the maximum height the baseball reaches?
- 5.2 43. Find the maximum value or minimum value for the function: $f(x) = -x^2 + 6x + 4$
5.4
- 5.6 44. Given: $y = 10x^2 - 17x - 20$. Write the quadratic function as a product of factors.
- 5.6 45. Solve using factoring: $x^2 + 4x - 5 = 0$
- 5.5 46. Find the x-intercepts of the graph of $y = x^2 - 13x + 36$.
5.6
- 5.5 47. Given: $y = 9x^2 - 12x + 4$ Determine the number of solutions.
- 6.5. 48. Make a box plot of the data in the table below and identify:

Bushels of Corn Per Acre

Farm A	150.4
Farm B	118.4
Farm C	120.6
Farm D	135.7
Farm E	139.1
Farm F	164.3
Farm G	134.2
Farm H	138.1
Farm I	119.5
Farm J	150.0

- median
- mean
- minimum
- maximum
- lower quartile(1st)
- upper quartile(3rd)
- the range
- the interquartile range
- any outliers(if exist)

Box plot:

- 6.4 49. The daily high temperature readings (in °F) in Kent during the first two weeks of May are given below.

{70, 76, 80, 80, 76, 63, 47, 68, 38, 73, 54, 58, 70, 66}

Complete the table below and make (a) an absolute frequency histogram and (b) a relative frequency histogram for the temperature.

Interval	Tally	Frequency	Relative Frequency
30-39			
40-49			
50-59			
60-69			
70-79			
80-89			

(a) *absolute frequency histogram*

(b) *relative frequency histogram*

Formulas

Note: Only a list of formulas will be given to you on the final. You must apply the correct formula to the correct problem.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$y = y_1 + a(x - x_1)$$

$$y = ab^x$$

$$y = ax + b$$

$$b^2 - 4ac$$

$$y = a(x - p)(x - q)$$

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

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$A = Pe^{rt}$$

$$y = ax^2 + bx + c$$

$$\frac{-b}{2a}$$