

The initial pressure inside a closed container is 200 pounds per square inch (psi). As the temperature inside the container increases, the pressure increases. If the pressure increases 7.5 psi for each degree Fahrenheit of increased temperature, which equation best represents  $p$ , the pressure inside the container after the temperature has increased  $t$  degrees?

- F**  $p = 7.5t$
- G**  $p = 200 + 7.5t$
- H**  $p = 200t + 7.5$
- J**  $p = 200t + 7.5t$

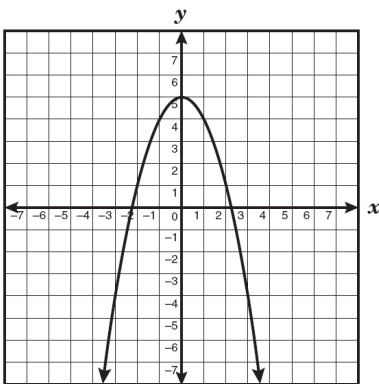
July '06 Obj 1 - # 14

Mitesh is  $m$  years old, and his brother Hiren is  $h$  years old. Which statement best describes the inequality  $m \geq h + 3$ ?

- A** Mitesh is at least 3 times as old as Hiren.
- B** Mitesh is at least 3 years older than Hiren.
- C** Hiren is more than 3 years older than Mitesh.
- D** Hiren is more than 3 times as old as Mitesh.

July '06 Obj 1 - # 37

Which quadratic equation best represents the parabola shown below?



- A**  $y = x^2 + x + 5$
- B**  $y = x^2 + 5$
- C**  $y = -x^2 + 5$
- D**  $y = -x^2 + x + 5$

July '06 Obj 1 - # 17

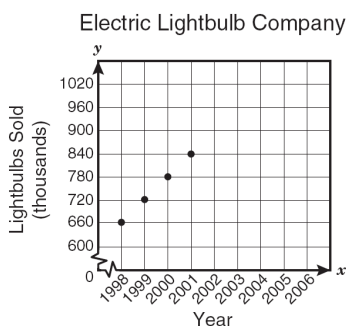
The table below shows the relationship between  $x$  and  $y$ . Which function best represents the relationship between the quantities in the table?

$x$	$y$
-1	-1
0	1
1	3
2	17

- F**  $y = 2x + 1$
- G**  $y = 2x^3 + 1$
- H**  $y = 2x^2 - 3$
- J**  $y = 2x^2 + 4x + 1$

July '06 Obj 1 - # 56

The graph below shows the number of lightbulbs in thousands that the Electric Lightbulb Company sold from 1998 to 2001. If the trend shown on the graph continues, in what year can the Electric Lightbulb Company first expect to sell more than 1.3 million lightbulbs?



- A** 2010
- B** 2008
- C** 2009
- D** 2011

July '06 Obj 1 - # 25

An ice-cream vendor made a table showing the relationship between the daily high temperature and the number of ice-cream cones sold per day. What is the dependent quantity in this relationship?

- A** The daily high temperature
- B** The number of ice-cream cones sold per day
- C** All of the data in the table
- D** Cannot be determined

Apr '06 Obj 1 - # 13

Objective 1 - Page 2 of 5

The profit earned on the sale of tool sets can be represented as the product of the number of tool sets sold and the difference between the selling price and the cost of making each set. The selling price of each tool set is \$19.95, and the cost of making each set is \$4.37. Which equation represents  $p$ , the profit, in terms of  $s$ , the number of tool sets sold?

- A  $p = s(19.95 - 4.37)$
- B  $p = s(19.95 + 4.37)$
- C  $p = 19.95 + 4.37s$
- D  $p = 19.95s - 4.37$

Apr '06 Obj 1 - # 37

According to the data shown below, which would be the best prediction of the number of passengers at the International Jetport for the year 2008?

Passengers at International Jetport

Year	Number of Passengers (millions)
1980	30.6
1985	38.5
1990	46.4
1995	54.3
2000	62.2

- A 70.1 million
- B 68.5 million
- C 74.8 million
- D 78.0 million

Apr '06 Obj 1 - # 59

Casey conducted an experiment and recorded the data in the table shown below. Which equation best describes these data?

$x$	$y$
1	1
2	2
3	5
4	10

- F  $y = x$
- G  $y = 2x - 1$
- H  $y = x^2 + x - 1$
- J  $y = (x - 1)^2 + 1$

Apr '06 Obj 1 - # 40

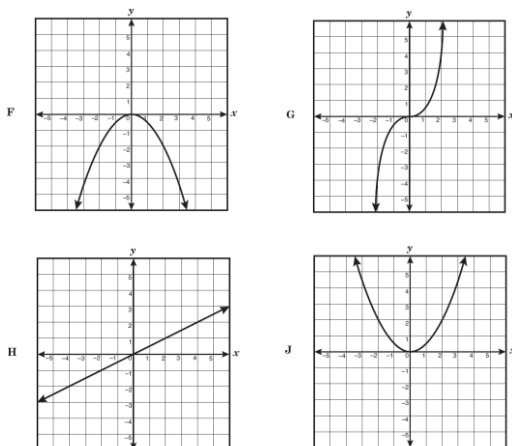
The total cost,  $c$ , of leasing a car can be expressed by the equation  $c = 1800 + 185m$ , where  $m$  is the number of months the car is leased. Which statement is true based on the information given?

- F The car must be leased for at least 60 months.
- G The total cost of leasing this car for 1 year is more than \$4000.
- H The total cost of leasing this car for 2 years is \$4020.
- J The cost of leasing this car is greater than the cost of buying one.

Feb '06 Obj 1 - # 12

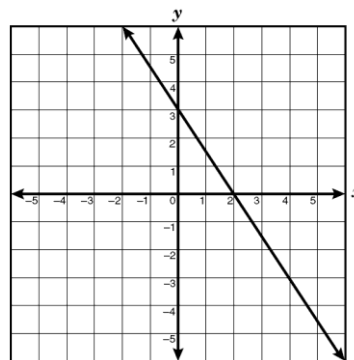
Which graph best represents the relationship shown in the table below?

$x$	$y$
-1	-0.5
0	0
1	0.5
2	4



Apr '06 Obj 1 - # 54

Which equation best represents the graph below?



- F  $y = 3 - \frac{3}{2}x$
- G  $y = 3 - \frac{2}{3}x$
- H  $y = 3 + \frac{2}{3}x$
- J  $y = 3 + \frac{3}{2}x$

Feb '06 Obj 1 - # 40

Objective 1 - Page 3 of 5

Which of the following sets does not represent a function?

- F**  $\{(-1, -1), (1, 1), (2, 2), (3, 3), (4, 4)\}$
- G**  $\{(-1, 0), (0, 2), (1, 4), (2, 6), (3, 8)\}$
- H**  $\{(-1, 2), (1, 1), (1, -1), (2, 1), (4, 2)\}$
- J**  $\{(-2, 4), (-1, 1), (1, 1), (2, 4), (3, 9)\}$

Feb '06 Obj 1 - # 44

The table below shows  $h$ , the approximate height of an Ameri-Willow tree after  $t$  years. Which equation best fits these data?

Age of Ameri-Willow (years)	Height of Ameri-Willow (feet)
1	8
3	25
6	49
7	57
9	70

- F**  $h = 8.2 + 3.75t$
- G**  $h = 1.12 + 7.82t$
- H**  $h = 7.5 + 0.65t^2$
- J**  $h = -1.24 + 9.75t$

Dec '06 Obj 1 - # 10

The wheels on Lee's bike each have a circumference of approximately 7 feet. Which of the following equations could be used to determine  $y$ , the total distance traveled in feet for each wheel as a function of  $x$ , the number of wheel revolutions?

- F**  $y = \frac{7}{x}$
- G**  $y = 7 + x$
- H**  $y = 7x$
- J**  $y = 7 - x$

Feb '06 Obj 1 - # 48

The payroll clerk at an appliance store calculates each salesclerk's weekly salary using the function  $f(x) = 75 + 0.10x$ , where  $x$  is each salesclerk's total weekly sales. The best interpretation of this situation is that each salesclerk is paid —

- F** \$75 plus a 10% commission on the total weekly sales of all the salesclerks
- G** \$75 plus a 10% commission on his or her weekly sales
- H** \$75 plus a 10% commission on the total weekly profit for the store
- J** the same amount regardless of his or her total weekly sales

Dec '06 Obj 1 - # 14

Which of the following equations best represents the relationship in the set of data shown below?

$x$	-4	-3	-1	2	4
$y$	24	17	9	12	24

- A**  $y = -7x - 4$
- B**  $y = \frac{3}{2}x^2$
- C**  $y = -5x + 4$
- D**  $y = x^2 + 8$

Feb '06 Obj 1 - # 57

The runners on a cross-country team need to buy bottles of water for their next meet. Each runner will buy at least four bottles, and the coach will buy six extra bottles. Which inequality best describes the total number of bottles,  $b$ , the runners and coach will buy in terms of  $n$ , the number of runners on the team?

- A**  $b < 4n + 6$
- B**  $b \geq 6n + 4$
- C**  $b \geq 4n + 6$
- D**  $b < 6n + 4$

Dec '06 Obj 1 - # 19

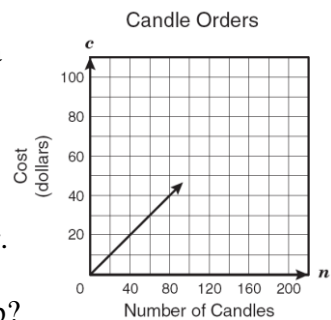
Objective 1 - Page 4 of 5

The volume of a sphere can be found by using the function  $V = \frac{4}{3}\pi r^3$ , where  $V$  represents the volume and  $r$  represents the radius. What is the dependent quantity in this function?

- A  $\pi$
- B  $V$
- C  $r$
- D  $\frac{4}{3}$

Dec '06 Obj 1 - # 35

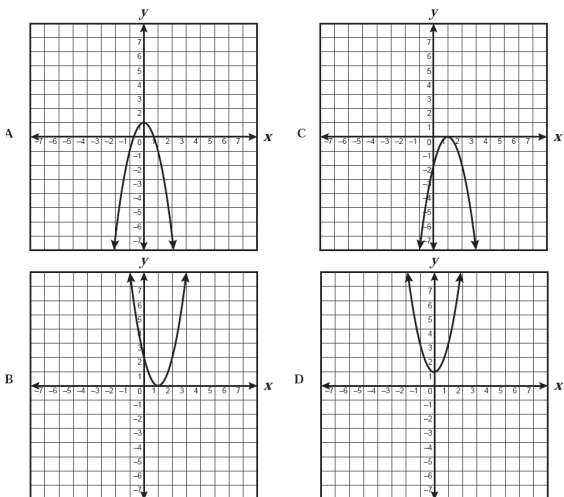
The owner of a candle store purchases his candles from a local distributor. The graph shows the relationship between  $n$ , the number of candles ordered, and  $c$ , the total cost of the candle order. Which conclusion can be drawn about this relationship?



- A An order of 50 candles will cost less than \$20.
- B An order of 100 candles will cost more than \$60.
- C An order of 150 candles will cost less than \$70.
- D An order of 200 candles will cost more than \$90.

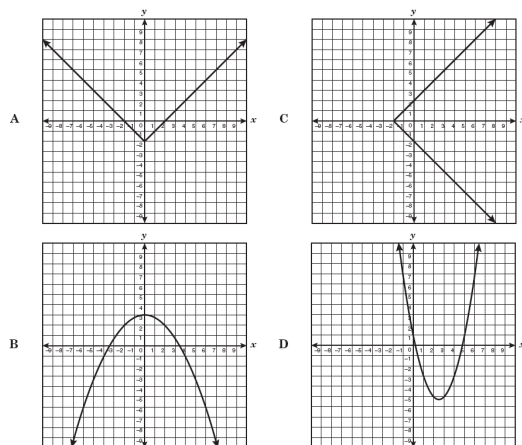
Oct '06 Obj 1 - # 11

Which graph best represents the equation  $y = 2x^2 + 1$ ?



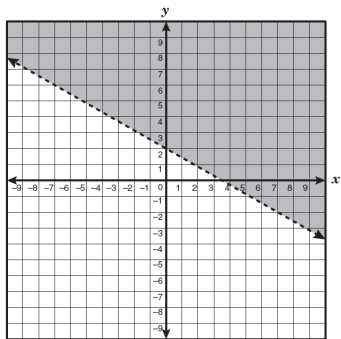
Dec '06 Obj 1 - # 57

Which of the following graphs does not represent  $y$  as a function of  $x$ ?



Oct '06 Obj 1 - # 19

Which inequality does the graph shown below best represent?



- A  $y < \frac{4}{7}x + 2$
- B  $y > -\frac{4}{7}x + 2$
- C  $y > \frac{4}{7}x + 2$
- D  $y < -\frac{4}{7}x + 2$

Oct '06 Obj 1 - # 9

A community-service organization is selling \$10 tickets to a fund-raiser for the local children's hospital. The money raised from ticket sales will be donated to the children's hospital. Which best describes the dependent quantity in this situation?

- F The number of tickets sold is dependent on the amount of the donation.
- G The price of each ticket is dependent on the number of tickets sold.
- H The amount of the donation is dependent on the number of tickets sold.
- J The price of each ticket is dependent on the amount of the donation.

Oct '06 Obj 1 - # 36

Luxury Limousine charges a fee of \$50 per hour to rent a limousine plus \$0.15 per mile driven. Which equation can be used to determine  $c$ , the total cost to rent a limousine for 3 hours, if  $m$  represents the number of miles the limousine is driven?

**A**  $c = 50 + 0.15m$

**B**  $c = 50 + 0.45m$

**C**  $c = 150 + 0.45m$

**D**  $c = 150 + 0.15m$

Oct '06 Obj 1 - # 49