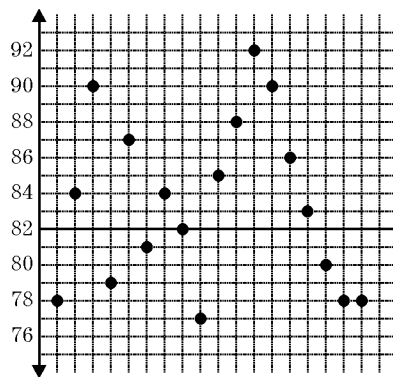


Do not write on this exam. Use scratch paper to work the problems. Record your answers on the scan sheet provided.

1. A telephone call from Richmond to Monterey costs 25¢ for the first minute and 10¢ for each additional minute. The equation  $y = 0.25 + 0.10x$  can be used to determine the cost of any phone call between these two cities. Name the independent and dependent quantities respectively.

- A** Minutes, Cost  
**B** Telephone, Cost  
**C** Cost, Minutes  
**D** Cost, Telephone  
**E** Telephone, Minutes

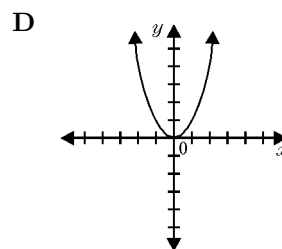
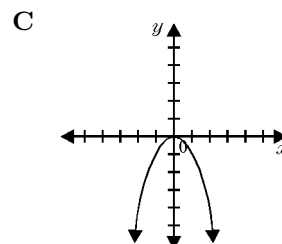
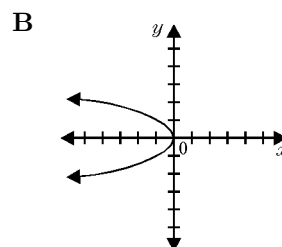
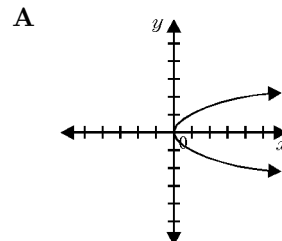
2. The graph shows a baseline at a grade of 82 since this is considered average on a typical grading scale. Kyle's first 18 grades for the quarter in his Algebra class have been recorded on the graph. How many times did he score 4 points below average?



- F** 1  
**G** 2  
**H** 3  
**J** 4  
**K** 5

3.

4. Which is the graph of  $y = -(x^2)$ ?



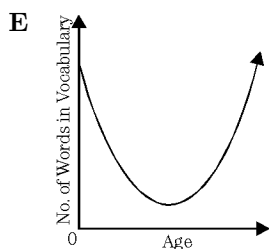
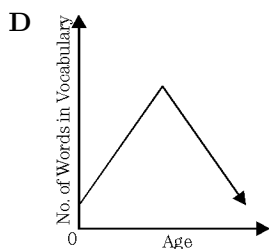
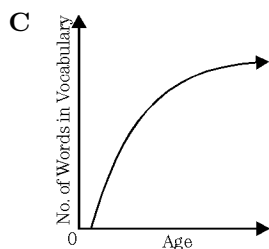
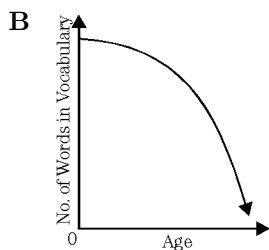
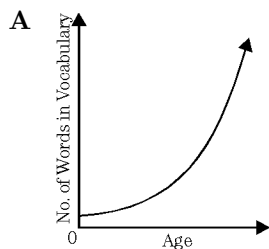
5. What is the range of the function

$$f(x) = x^2 + 1$$

when the domain is  $\{2, 4, 6\}$ ?

- F**  $\{3, 5, 7\}$   
**G**  $\{5, 9, 13\}$   
**H**  $\{9, 25, 49\}$   
**J**  $\{5, 17, 37\}$   
**K**  $\{6, 10, 14\}$

6. Our vocabulary increases as we get older. Which of the following graphs is the *best* representation of the number of words in a person's vocabulary compared to the person's age?



7. You could use the equation  $42 - m = 26$  to solve the following problem.

Lonni has 42 marbles. She gave some to her cousin and she has 26 left. How many marbles did Lonni give to her cousin?

What does the  $m$  in the equation represent?

- F** the number of marbles Lonni's cousin has now  
**G** the number of marbles Lonni had in the beginning  
**H** the number of marbles Lonni's cousin received  
**J** the number of marbles Lonni has now

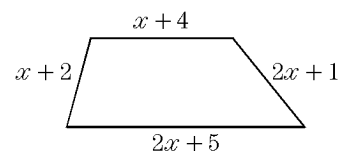
8. Consider the table of values shown. The relationship of  $x$  to  $y$  is represented by which equation?

$x$	0	1	2	3	4
$y$	2	5	8	11	14

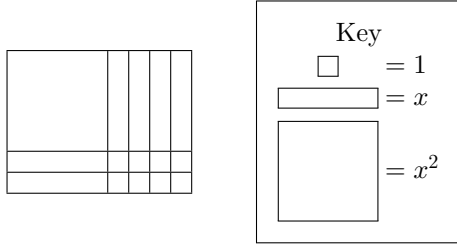
- A**  $y = 4x$   
**B**  $y = x + 2$   
**C**  $y = 3x + 2$   
**D**  $y = 4x - 1$

9. The lengths of the sides of a quadrilateral are given as shown. Express the perimeter in terms of  $x$ .

- F**  $6x + 11$   
**G**  $4x^2 + 12$   
**H**  $6x + 12$   
**J**  $4x^2 + 40$   
**K**  $3x + 6$



10. A rectangle with an area of  $x^2 + 6x + 8$  is modeled using algebra tiles.



What are the dimensions of the rectangle in terms of  $x$ ?

- A  $(x + 4)$  by  $(x - 2)$
- B  $(2x + 1)$  by  $(4x + 1)$
- C  $(x + 2)$  by  $(x - 2)$
- D  $(x + 2)$  by  $(x + 4)$
- E  $(x + 2)$  by  $(x + 1)$

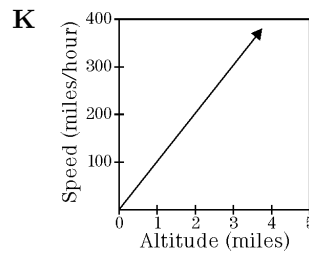
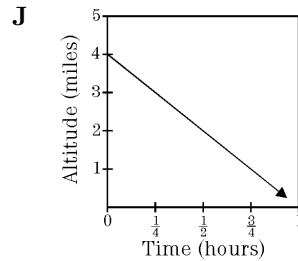
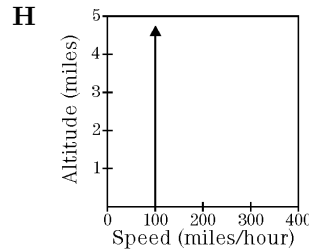
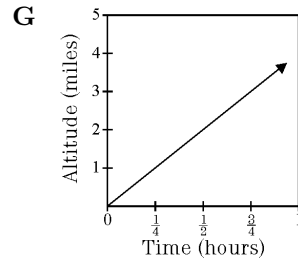
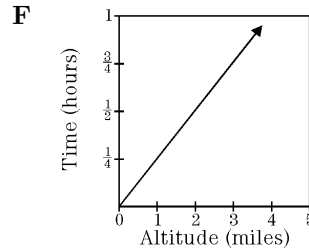
11. Use the distributive property to select the expression equal to  $4(a + b)$ .

- F  $a + 4b$
- G  $4a + b$
- H  $4a + 4b$
- J  $\frac{4a}{b}$
- K  $\frac{4a}{4b}$

12. Which of the following relations behaves in a linear fashion?

- A the number of ice cream cones sold each month over a 12 month period
- B the the rate of a bicycle going up and down hills
- C the number of days to summer vacation from the beginning of the school year to the end
- D the the hunger level of a 3 year old from morning to evening

13. An airplane takes off and climbs at a rate of 1 mile every 15 minutes. Which of the following graphs best represents the altitude of airplane?



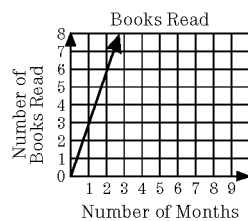
14. Sammy and Suzy are building ramps to jump their bikes. With the help of her uncle, Suzy builds a ramp that is 10 feet along the ground and 3 feet high at the end. Sammy and his mother build a ramp that is 6 feet along the ground and 2 feet high at the end. What is the relationship between the slopes of the two ramps?

- A** They have the same slope.  
**B** The slope of Steven's ramp is steeper  
**C** The slope of Suzy's ramp is steeper  
**D** The slope of Sammy's ramp is steeper  
**E** Cannot be determined.

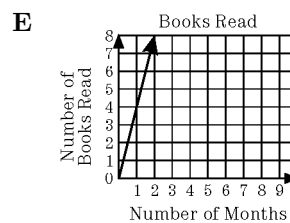
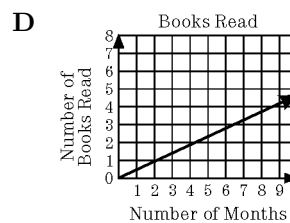
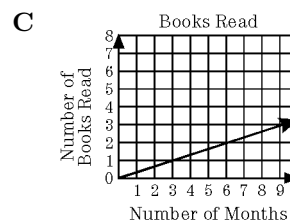
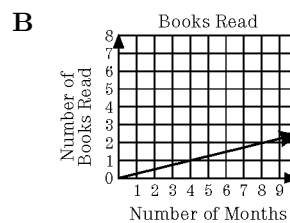
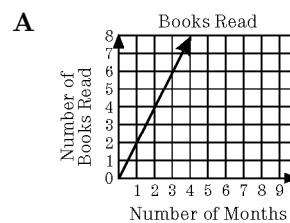
15. Which equation describes the line containing the points  $(-4, -3)$  and  $(3, 4)$ ?

- F**  $y = x + 1$   
**G**  $y = -x + 1$   
**H**  $y = x - 1$   
**J**  $y = -x - 1$   
**K**  $y = -x + 7$

16. The graph shown represents books read by a student who reads at a rate of 3 books per month. The equation is  $B = 3m$  where  $B$  is the number of books read and  $m$  is the number of months.



Which of the following graphs best represents the number of books read by a student who reads at a rate of 4 books per month?



17. Which table is an example of  $y$  varying directly with  $x$ .

**F**

$x$	3	4	5
$y$	5	6	7

**G**

$x$	3	4	5
$y$	5	4	3

**H**

$x$	3	4	6
$y$	9	16	25

**J**

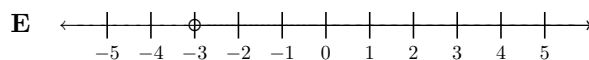
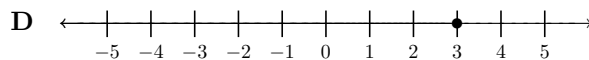
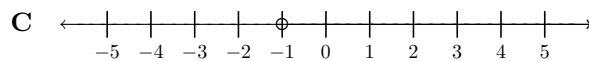
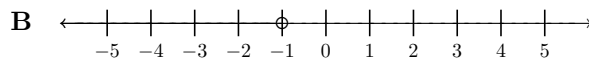
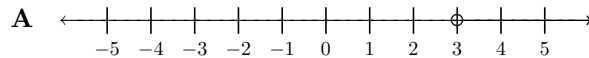
$x$	3	4	5
$y$	6	8	10

18. A video store offers two different rental plans described in the chart. Neither plan limits the number of videos a person can rent each day.

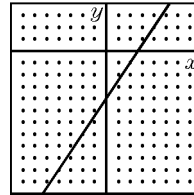
Type of Fee	Plan A	Plan B
Annual Membership	\$15	None
Daily Rental Per Video	\$1.99	\$2.49

What is the greatest number of videos that a person could rent for Plan B to be less expensive than Plan A? Explain how you determined your answer.

19. Which graph represents the solution to  $x - 2 > 1$ ?



20. If the line  $x - 2y + 2 = 0$  were added to the graph, at what point would it intersect the line shown?



21. Which of the following systems represent a pair of lines that intersect *only* at their  $y$ -intercept?

**F**  $3x + 2y = 6$   
 $6x + 4y = 12$

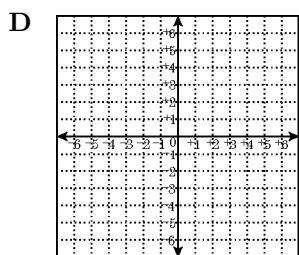
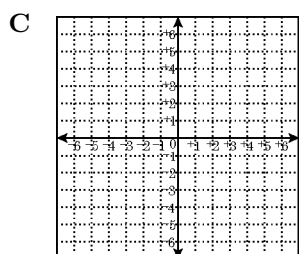
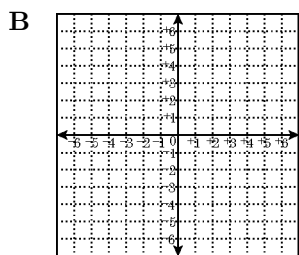
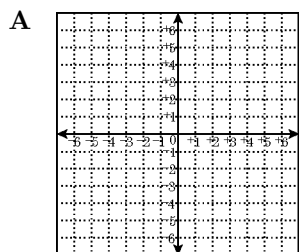
**G**  $2x + 3y = 6$   
 $3x + 2y = 6$

**H**  $2x + 3y = 6$   
 $-2x + 3y = 6$

**J**  $2x + 3y = 6$   
 $-3x + 2y = 6$

**K**  $3x + 2y = 6$   
 $-3x + 2y = 6$

22. Which is the graph of  $y = -x^2$ ?



23. How many times does the graph  $y = x^2 + 2$  cross the  $x$ -axis?

- F** 4  
**G** 3  
**H** 2  
**J** 1  
**K** 0

24. Cindy is wall papering her square dining room. She must purchase a base board to edge the floor. The surface area covered by wallpaper is  $480 \text{ ft}^2$ . If the height of the ceiling is 8 ft, what is the perimeter of the floor in the dining room?

- A** 50 ft  
**B** 56 ft  
**C** 60 ft  
**D** 64 ft  
**E** 68 ft

25.  $-3^5$  is equivalent to which expression?

- F** 729  
**G** 243  
**H**  $-15$   
**J**  $-243$   
**K**  $-729$

**Answer List**

- |       |       |       |
|-------|-------|-------|
| 1. A  | 2. H  | 3.    |
| 4. C  | 5. J  | 6. C  |
| 7. H  | 8. C  | 9. H  |
| 10. D | 11. H | 12. C |
| 13. G | 14. D | 15. F |
| 16. E | 17. J | 18.   |
| 19. A | 20.   | 21. H |
| 22. A | 23. K | 24. C |
| 25. J |       |       |

**Catalog List**

- |               |               |               |
|---------------|---------------|---------------|
| 1. TX7 GA 5   | 2. TX7 GB 13  | 3. TX7 GD 1   |
| 4. TX7 HA 2   | 5. TX7 HB 5   | 6. TX7 HC 17  |
| 7. TX7 HE 2   | 8. TX7 HF 5   | 9. TX7 HH 10  |
| 10. TX7 HJ 2  | 11. TX7 HK 2  | 12. TX7 IA 2  |
| 13. TX7 IC 6  | 14. TX7 ID 18 | 15. TX7 IF 9  |
| 16. TX7 IH 2  | 17. TX7 II 2  | 18. TX7 JA 51 |
| 19. TX7 JB 1  | 20. TX7 JE 25 | 21. TX7 JF 3  |
| 22. TX7 KA 1  | 23. TX7 KC 8  | 24. TX7 KD 33 |
| 25. TX7 KF 32 |               |               |

1. The first row in a theater has 8 seats, the second row has 12 seats, and the third row has 16 seats. If this pattern continues, how many seats will the *sixth* row have? 1.

2. Kim had to complete some work at the rate shown. How many units should be completed on the *n*th day? 2.

Units to Complete	4	8	12	16	20
Day	1st	2nd	3rd	4th	5th

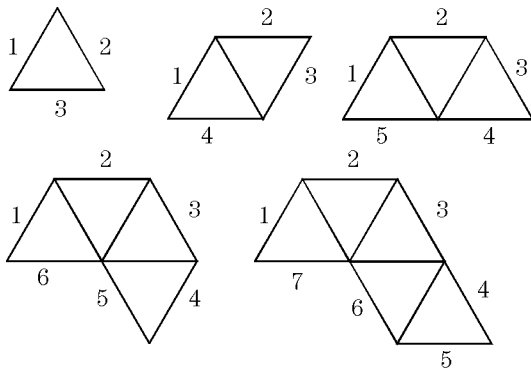
3. Consider the following two patterns: 3.

355, 351, 347, 343, ...  
*and*  
 383, 378, 373, 368, ...

If these two patterns are continued, then what number will appear in both patterns?

- a) 3                      b) 8                      c) 12                      d) 15                      e) 20

4. The figures shown were formed with pattern blocks. Find an expression which represents the number of pattern block edges in the perimeter of a figure formed by *n* pattern blocks. 4.



5. Consider the following pattern: 5.

$$\begin{array}{rcl}
 1 & = & 1 = 1^2 \\
 1 + 3 & = & 4 = 2^2 \\
 1 + 3 + 5 & = & 9 = 3^2 \\
 1 + 3 + 5 + 7 & = & 16 = 4^2 \\
 \dots & & 
 \end{array}$$

What does  $1 + 3 + 5 + \dots + 59$  equal?

6. Which equation describes the pattern shown? 6.

3, 9, 27 ...

- a)  $n, 2n, 3n \dots$  b)  $n, 3n, 6n \dots$   
 c)  $n, n + 6, n + 12 \dots$  d)  $n, n^2, n^3 \dots$

7. If the output is 21, what is the input? 7.

Input	Output
1	3
2	5
3	7
4	9

8. Consider the following relation: 18, 26, 34, 42, ... If this pattern is continued which of the following numbers will appear? 8.

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2nd Period Math    Assignment 12    Mr. Hankler    10/16/2002

**Answer List**

- |            |         |      |
|------------|---------|------|
| 1. 28      | 2. $4n$ | 3. a |
| 4. $n + 2$ | 5. 900  | 6. d |
| 7. 10      | 8. 794  |      |

**Catalog List**

- |              |              |              |
|--------------|--------------|--------------|
| 1. TX7 BH 1  | 2. TX7 BH 3  | 3. TX7 BH 5  |
| 4. TX7 BH 7  | 5. TX7 BH 9  | 6. TX7 BH 11 |
| 7. TX7 BH 13 | 8. TX7 BH 15 |              |

## Week of January 13–17

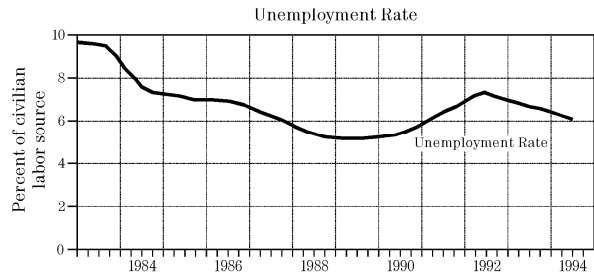
### Monday

This table gives the average temperatures and latitudes for several cities. Name the independent and dependent quantities respectively.

City	Avg. Temp.	Latitude
Boston, MA	47.3°	42.39° N
Charlotte, NC	60.0°	35.14° N
Jacksonville, FL	68.0°	30.20° N
New York, NY	54.5°	40.43° N
Portland, ME	45.0°	43.39° N
Miami, FL	75.6°	25.46° N

### Tuesday

Name the independent and dependent quantities respectively.



### Wednesday

A telephone call from Richmond to Monterey costs 25¢ for the first minute and 10¢ for each additional minute. The equation  $y = 0.25 + 0.10x$  can be used to determine the cost of any phone call between these two cities. Name the independent and dependent quantities respectively.

### Thursday

Lemon Car Rental charges a flat fee of \$35 plus 65¢ per mile to rent a car. To determine the cost for renting a car from Lemon Car Rental, use the equation  $y = 35 + 0.65x$ . Name the independent and dependent quantities respectively.

### Friday

The graph shows how long it takes an elevator to travel from floor to floor. How long does it take the elevator to travel six floors without any stops between?

