

**Day 14 – Arithmetic Sequences****Practice Assignment**

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Block: \_\_\_\_\_

For problems 1-3, determine the first 4 terms of the sequence.

1.

$$a_1 = 13$$

$$a_n = a_{n-1} + 12$$

2.

$$a_1 = 45$$

$$a_n = a_{n-1} - 10$$

3.

$$a_1 = -4$$

$$a_n = a_{n-1} + 12$$

For problems 4 – 5, create a RECURSIVE rule for each sequence.

4. 10, 11, 12, 13, ...

5. -1, 3, 7, 11, ...

6. 14, 25, 36, 47...

Given the first term and the common difference of an arithmetic sequence determine the EXPLICIT formula and find the first five terms of the sequence.

7.  $a_1 = 28; d = 10$

8.  $a_1 = -38; d = -100$

9. A theater has 20 seats in the first row, 22 in the second row, 24 in the third row, and so on for 25 rows. How many seats will be in the 13th row?

10. Camden is collecting bugs for science class. The first day his sister helps him, and he finds 35 bugs. After day 2, he has 52 bugs. On day 3, he has 69 bugs. How many bugs will he have on the 15th day?

11. Count the number of lines creating each figure and answer the questions below:

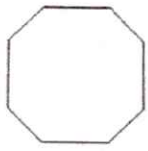


Fig 1

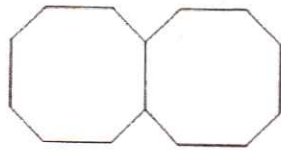


Fig 2

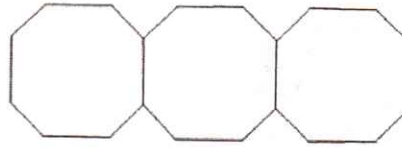


Fig 3

Complete the table below:

Fig #	0	1	2	3	4	5
# of lines						

a. Write the **CLOSED (EXPLICIT)** and **RECURSIVE** rule for the number of lines needed to generate each shape.

b. How many lines would be used to create figure #20?

12. After the first day at work, Annie realized that she sent 127 e-mails. Each day, Annie's e-mail count increased by 10. If she keeps this up, how many e-mails will she have sent after 3 weeks?

$d =$  \_\_\_\_\_

$a_1 =$  \_\_\_\_\_

Formula: \_\_\_\_\_

After 3 weeks: \_\_\_\_\_

**MC Practice**

1. In the sequence above, the first term is 4 and each term after the first is 7 more than the previous term. What is the 12<sup>th</sup> term of the sequence?

a. 77

b. 81

c. 84

d. 86

2. Find the 25<sup>th</sup> term of the sequence 7, 11, 15, 19, 23, ...

a. 103

b. 104

c. 107

d. 111

3. Which represents the  $n$ th term of this sequence? 31, 36, 41, 46, 51, ...

a.  $51 + (n-1)6$

b.  $51 + (n-1)5$

c.  $31 + (n-1)6$

d.  $31 + (n-1)5$

4. What is the 9<sup>th</sup> term in this sequence? 20, 14, 8, 2, ...

a. 62

b. -4

c. -22

d. -28

5. What are the first four terms in the sequence whose  $n$ th term is  $a_n = (-2)^n + 1$

a. 3, 4, 5, 6

b. -1, 1, -1, 1

c. -1, 5, -7, 17

d. -2, 4, -8, 16

6. The 8<sup>th</sup> term of an arithmetic sequence is 36. If the common difference is 2, what is the first term in the sequence?

a. 22

b. 24

c. 38

d. 64

UNIT SIX - THINGS TO REMEMBER

**FUNCTIONS**

FUNCTION NOTATION ●

Linear Functions

**SLOPE**

*Graphing Lines*

Y-Intercept

Algebra IA

Unit 4 Worksheet 8

Interpreting slope and y-intercept – Part 2 Name \_\_\_\_\_

1. The function below shows the cost of a hamburger with different numbers of toppings (t).

$$f(t) = 1.90 + 1.40t$$

- What is the y-intercept, and what does it mean?
- What is the slope, and what does it mean?
- If Jodi paid \$3.30 for a hamburger, how many toppings were on Jodi's hamburger?

2. The function below shows the cost of an ice cream sundae with different numbers of toppings (t).

$$f(t) = 2.25 + 0.75t$$

- What is the y-intercept, and what does it mean?
- What is the slope, and what does it mean?
- If Kaye paid \$6.00 for a sundae, how many toppings were on Kaye's sundae?

3. The function below shows the cost to attend the fair if you ride  $r$  rides.

$$f(r) = 5 + 1.75r$$

- a. What is the y-intercept, and what does it mean?
  
  
  
  
  
  
  
  
  
  
- b. What is the slope, and what does it mean?
  
  
  
  
  
  
  
  
  
  
- c. If Al spent \$19.00 at the fair, how many rides did Al ride?

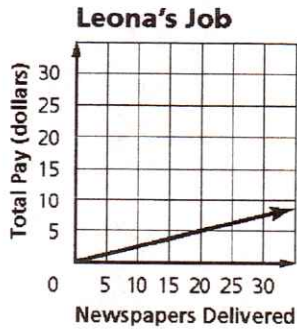
4. The function below shows the cost for Mrs. Franklin to go to a buffet with  $c$  of her grandchildren.

$$f(c) = 6.85 + 2.95c$$

- a. What is the y-intercept, and what does it mean?
  
  
  
  
  
  
  
  
  
  
- b. What is the slope, and what does it mean?
  
  
  
  
  
  
  
  
  
  
- c. If Mrs. Franklin paid 18.65 for the buffet, how many of her grandchildren did she take to the buffet?



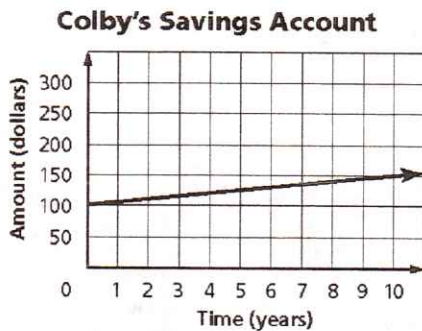
5. The graph below shows the number of newspapers delivered and total pay for Leona's newspaper delivery job. What does the slope of this graph represent?



6. Dionne pays a fixed fee plus an hourly rate to rent a boat. The table below shows how much Dionne paid for the boat. What was Dionne's hourly rate to rent the boat?

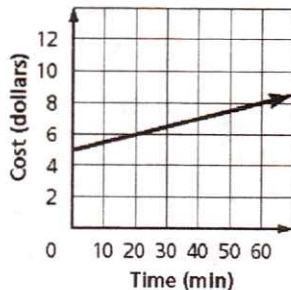
Dionne's Boat Rental					
<b>Hours Rented</b>	1	2	3	4	5
<b>Amount Paid</b>	\$27	\$39	\$51	\$63	\$75

7. Colby put \$100 in a savings account. The graph below shows how the amount in the account would increase over the next ten years. What does the y-intercept represent?



8. Tara pays a base rate for her long distance phone service plus a per-minute charge. The graph below shows what she would pay for her long distance phone service for the first 60 minutes. What does the y-intercept of this graph represent?

**Long Distance Service**



9. Rich is a member of a gym. He pays a monthly fee plus a per-visit fee. The equation below represents the monthly amount Rich pays for his membership to the gym per month for  $x$  visits.

$$y = 3x + 10$$

What does the y-intercept of the graph of this equation represent?

10. Nan works as a commissioned sale rep. She makes a weekly base salary plus a commission for each sale she makes. The table below shows how much Nan can make. What is Nan's weekly base salary?

Nan's Weekly Salary					
Sales Made	1	2	3	4	5
Salary	\$250	\$300	\$350	\$400	\$450



11. Charlie rented a moving truck. He paid a daily fee plus a per-mile fee to rent the truck. The equation below represents the daily amount Charlie paid for the truck if he drives it  $x$  miles.

$$y = 0.5x + 10$$

What does the slope of the graph of this equation represent?

Write a linear equation in slope-intercept form to model each situation.

12. You rent a bicycle for \$20 plus \$2 per hour.

13. An auto repair shop charges \$50 plus \$25 per hour.

14. A candle is 6 inches tall and burns at a rate of  $\frac{1}{2}$  inch per hour.

15. The temperature is  $15^\circ$  and is expected to fall  $2^\circ$  each hour during the night.

16. What happens to the equation when  $y = x$  becomes  $y = x + 3$ ?
17. What happens to the equation when  $y = x$  becomes  $y = x - 2$ ?
18. What happens to the equation when  $y = x$  becomes  $y = -x$ ?
19. What happens to the equation when  $y = x$  becomes  $y = 4x$ ?
20. What happens to the equation when  $y = x$  becomes  $y = 3x - 7$ ?
21. What happens to the equation when  $y = x$  becomes  $y = -4x + 5$ ?
22. What happens to the equation when  $y = 7$  becomes  $y = 3$ ?
23. What happens to the equation when  $y = -3$  becomes  $y = 2$ ?

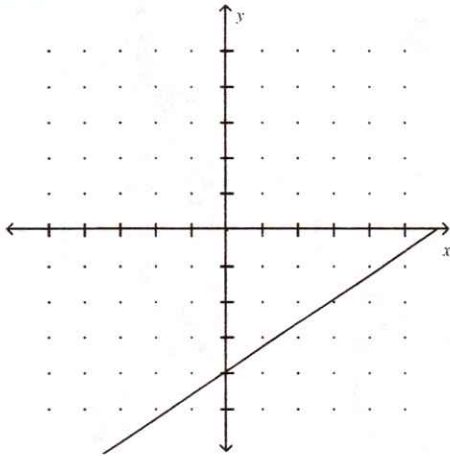
Write an equation in slope-intercept form, given the following information.

24. The slope is 5 and the y-intercept is 8.

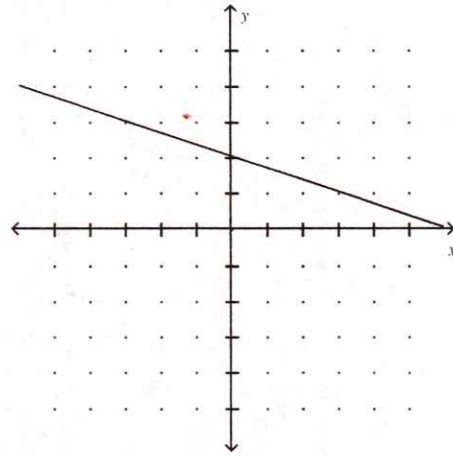
25. The slope is -3 and the y-intercept is -2.

Write the equation of the line in slope-intercept form.

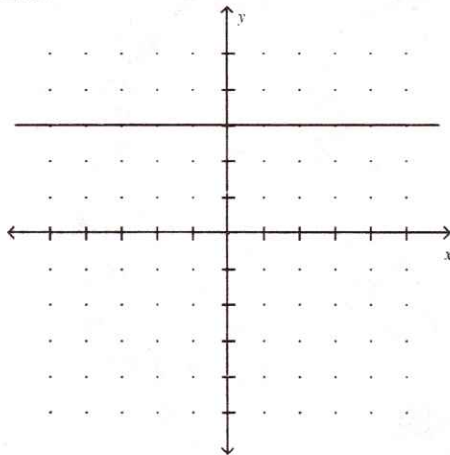
26.



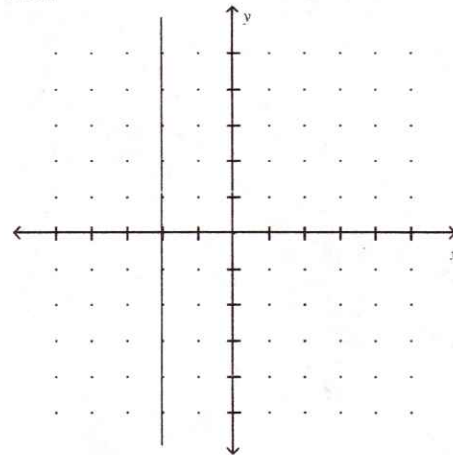
27.



28.

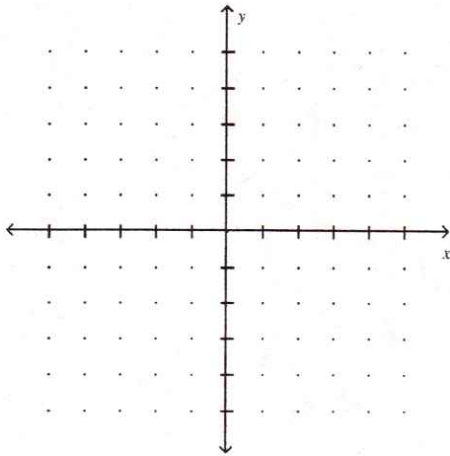


29.

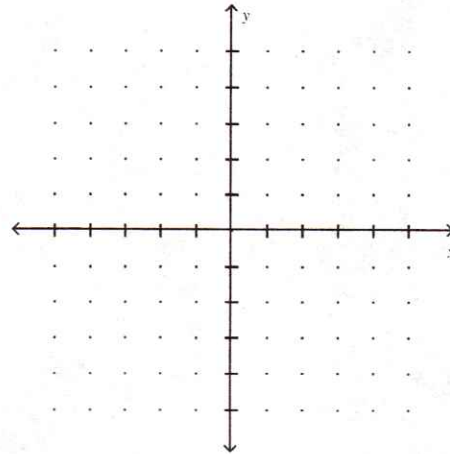


Graph the line that passes through the given point and has the given slope.

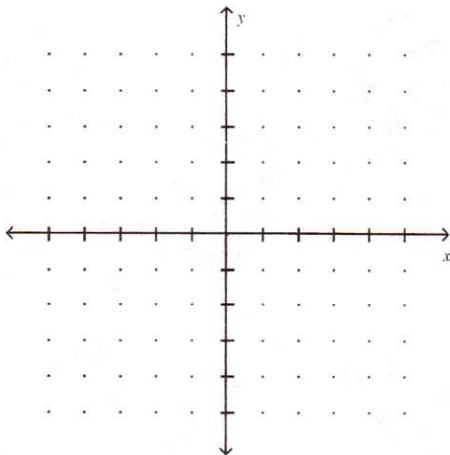
30.  $(3, 1)$   $m = 2$



31.  $(-2, 5)$   $m = \frac{-1}{3}$



32.  $(4, -2)$   $m = 0$



33.  $(3, -2)$   $m = \text{undefined}$

