9.3H Equations from Sequences Name:_____ Per:_____

SHOW YOUR WORK. WORK IN PENCIL

Find the missing terms for each sequence. **Circle** if it is a **common difference OR common ratio** and find it. Write the **recursive** and **explicit** equations based on the given term.

1. 5, 11, _____, 23, 29, _____ D or R _____

   $f(2) = 5$ Recursive Eq: _____

   Explicit Equation: _____

2. 7, 3, –1, _____, _____, –13 D or R _____

   $f(2) = 7$ Recursive Eq: _____

   Explicit Equation: _____

3. 20, 10, _____, 2.5, _____ D or R _____

   $f(1) = 20$ Recursive Eq: _____

   Explicit Equation: _____

4. 2, 6, 18, _____, 162 D or R _____

   $f(-1) = 2$ Recursive Eq: _____

   Explicit Equation: _____

5. 5, _____, 15, _____, 25 D or R _____

   $f(1) = 15$ Recursive Eq: _____

   Explicit Equation: _____

6. 10, ____, 40, −80, _____ D or R _____

   $f(3) = 10$ Recursive Eq: _____

   Explicit Equation: _____

Use the two consecutive terms in an **arithmetic sequence** to **find the common difference**. **Find** the two given terms. Then **write** the **recursive and explicit equations**.

7. If $f(3) = 5$ and $f(4) = 8$, d =_____

   find $f(5)$ =_____ and $f(6)$ =_____

   Recursive: _____

   Explicit: _____

8. If $f(2) = 20$ and $f(3) = 12$, d =_____

   find $f(4)$ =_____ and $f(5)$ =_____

   Recursive: _____

   Explicit: _____

9. If $f(5) = 3.7$ and $f(6) = 8.7$, d =_____

   find $f(11)$ =_____ and $f(12)$ =_____

   Recursive: _____

   Explicit: _____

10. If $f(100) = 245$ and $f(101) = 250$, d =_____

    find $f(5)$ =_____ and $f(12)$ =_____

    Recursive: _____

    Explicit: _____

Find each value of the given sequence and then **write the recursive equation.**

11. $f(n) = 2^{n-1}$, find

    $f(3)$ =_____

    $f(6)$ =_____

    Recursive:

12. $f(n) = (-2)^n$, find

    $f(3)$ =_____

    $f(6)$ =_____

    Recursive:

13. $f(n) = 3 + 4(n-1)$, find

    $f(5)$ =_____

    $f(6)$ =_____

    Recursive:

14. If $3^3 = 27$, and $3^2 = 9$, and $3^1 = 3$, and $3^0 = 1$, what is $3^{1/2}$ =

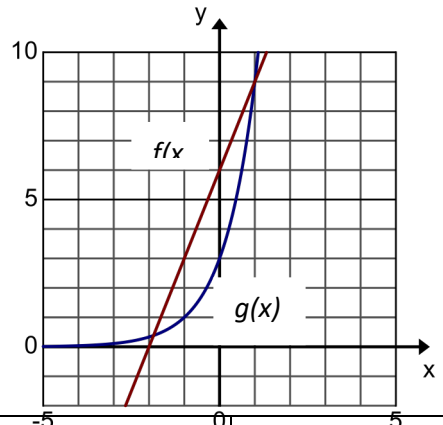
In each situation below, find **the rate of change**. Which has the greatest rate of change? **Explain**

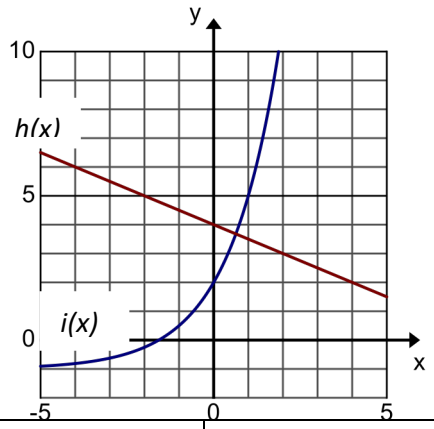
15. A sunflower that grows 2 inches every day or an amaryllis that grows 18 inches in one week.

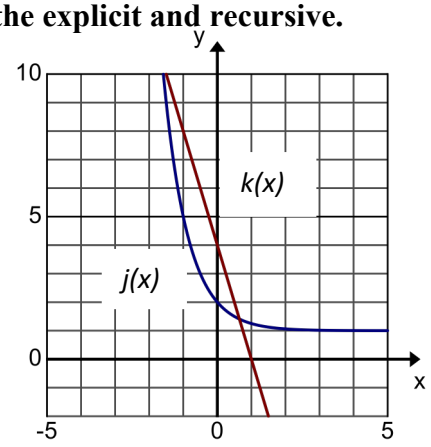
_____

16. Pumping 25 gallons of gas into a truck in 3 minutes or filling a bathtub with 40 gallons of water in 5 minutes. _____

17. Given the following graphs, **make a table of at least 3 values. Write the explicit and recursive.**







a. $f(x)$	b. $g(x)$	c. $h(x)$	d. $i(x)$	e. $j(x)$	f. $k(x)$
Recursive: Explicit:	Recursive: Explicit:	Recursive: Explicit:	Recursive: Explicit:	Recursive: Explicit:	Recursive: Explicit:

18. Mr. Peters, an English teacher, has a 10% off late paper policy. This means that for each day that an assignment is late a student receives 90% of the credit he or she would have received the day before.
    a. Make a table (at least three values) to show the potential credit that can be earned.

    b. After how many days would your score for a late assignment drop below 50%? _____

    c. According to his policy, would your score ever reach 0? _____ Explain. _____

    _____

    d. To represent the situation, write a recursive equation: _____ and explicit equation: _____