**Unit 2A Review Sheet F18** Name: key

**Complete the exponent properties review sheet!**

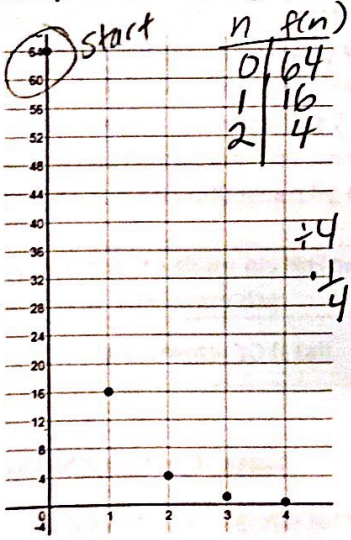
**Complete the following statements:**

1. When multiplying with like bases, multiply the coefficients and add the exponents.
2. When dividing with like bases, divide the coefficients and subtract the exponents.
3. When raising to a power, raise to power the coefficients and multiply the exponents.
4. When a function is discrete, the change happens all at once
5. When a function is continuous, the change happens all the time/constantly
6. When a function is discrete, it does not make sense to look at the numbers in between.
7. When a function is continuous, it does make sense to look at the numbers in between.
8. An arithmetic sequence can be written as a linear function.
9. A geometric sequence can be written as a exponential function.
10. The domain of a sequence is always whole or natural numbers
11. The domain of a continuous function is always real numbers (but may be restricted)
12. Match each set notation symbols with the name of the set: $\mathbb{R}$ $\mathbb{Z}$ $\mathbb{N}$ $\mathbb{Q}$ $\mathbb{W}$

Real numbers $\mathbb{R}$ Rational numbers $\mathbb{Q}$ Integers $\mathbb{Z}$ Whole numbers $\mathbb{W}$ Natural numbers $\mathbb{N}$

**Determine if the graph is discrete or continuous, linear or exponential, and increasing or decreasing. Then write an explicit equation for each graph.**

13.

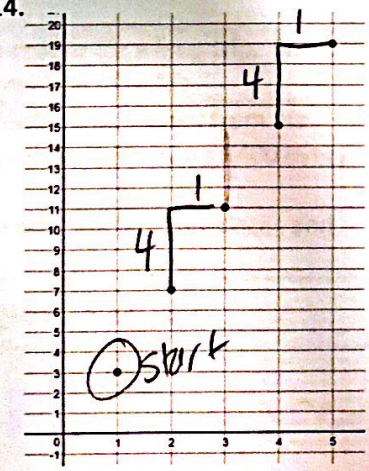



| n | f(n) |
|---|---|
| 0 | 64 |
| 1 | 16 |
| 2 | 4 |

÷4
·1/4

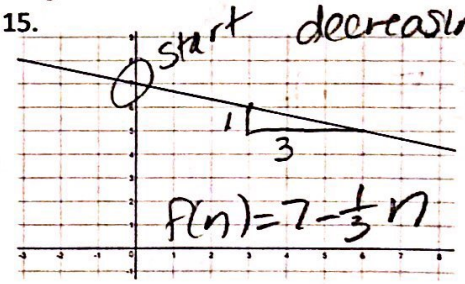
discrete
exponential
decreasing
$f(n) = 64\left(\frac{1}{4}\right)^n$

14.



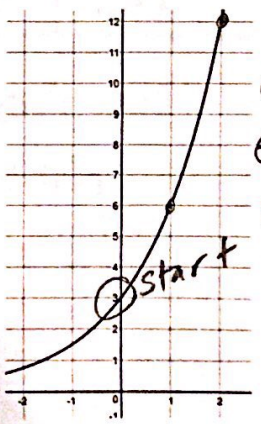

discrete
linear
increasing
$f(n) = 3 + 4(n-1)$

15. continuous linear




$f(n) = 7 - \frac{1}{3}n$

16.




continuous
exponential
increasing

| n | f(n) |
|---|---|
| 0 | 3 |
| 1 | 6 |
| 2 | 12 |

$f(n) = 3 \cdot 2^n$

For each situation, determine if the model is discrete or continuous, linear or exponential, and increasing or decreasing.

| | Discrete or continuous? | Linear or exponential? | Increasing or decreasing? |
|---|---|---|---|
| 10. 6, 12, 24, 48, 96, ... | DISC | EXP | INC |
| 11. <table><tr><td>$n$</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>$f(n)$</td><td>6</td><td>3</td><td>0</td><td>-3</td><td>-6</td><td>-9</td></tr></table> | DISC | LIN | DEC |
| 12. $f(n)=\frac{4}{3}n+12$ | CONT. | LIN | INC |
| 13. $f(0)=-6$<br>$f(n)=\frac{2}{5}f(n-1)$ | DISC | EXP | DEC |
| 14. $f(n)=7\left(\frac{3}{2}\right)^n$ | CONT | EXP | INC |
| 15. <table><tr><td>$n$</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>$f(n)$</td><td>100</td><td>10</td><td>1</td><td>.1</td><td>.001</td><td>.0001</td></tr></table> | DISC | EXP | DEC |
| 16. Joe has saved $1000. His account earns 4% interest per year. | CONT | EXP | INC |
| 17. Selena is collecting magnets. She has 45 so far and plans to add 4 new magnets to her collection every summer. | DISC | LIN | INC |
| 18. My yard has 1200 square feet of grass. I've seeded the yard and the amount of grass is doubling every week. | CONT | EXP | INC |
| 19. Nancy is downloading books on her e-reader for a long trip. She has 3 books now and is downloading 2 books every 5 minutes. | CONT | LIN | INC |
| 20. Savion has retired and has started withdrawing money from his savings. He had $65,000 when he retired and he withdraws $400 every month. | DISC | LIN | DEC |
| 21. Harry wants to share his Halloween candy. He has 500 pieces and will give away 10% every day. | DISC | EXP | DEC |
| 22. The tree is currently 10 ft tall. It will grow 3 ft per year. | CONT | LIN | INC |

**On a separate piece of paper,**

Draw and fully label and graph for #11, 16, 20, 21, and 22

Write an explicit equation for #10, 11, and 15 – 22

(10) $f(n)=6\cdot 2^{n-1}$

(11) $f(n)=6-3(n-1)$

(15) $f(n)=100\left(\frac{1}{10}\right)^n$

(16) $f(n)=1000(1.04)^n$

(17) $f(n)=45+4n$

(18) $f(n)=1200(2)^n$

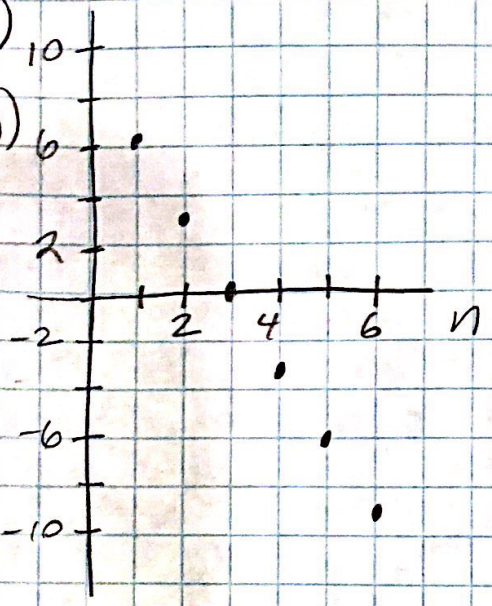
(19) $f(n)=3+\frac{2}{5}n$

(20) $f(n)=65000-400n$

(21) $f(n)=500(.9)^n$

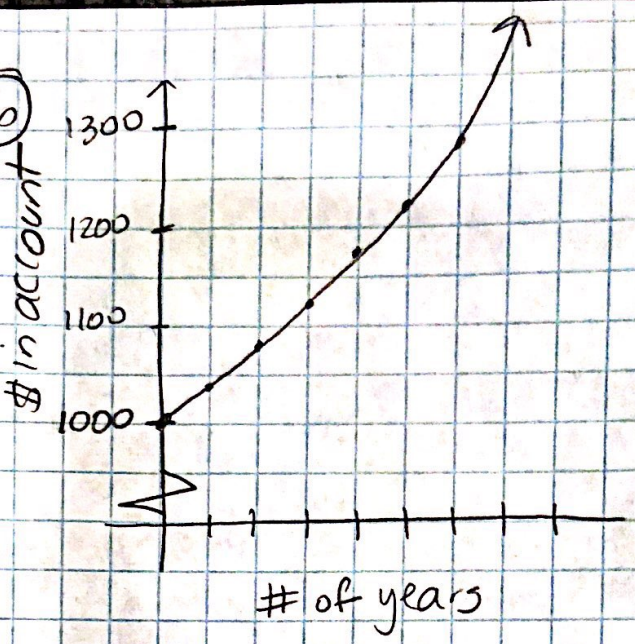
(22) $f(n)=10+3n$

(11)



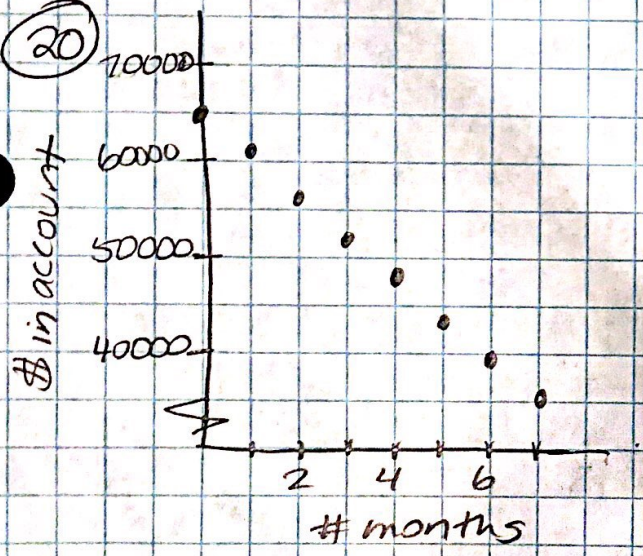

domain: natural numbers

(16)



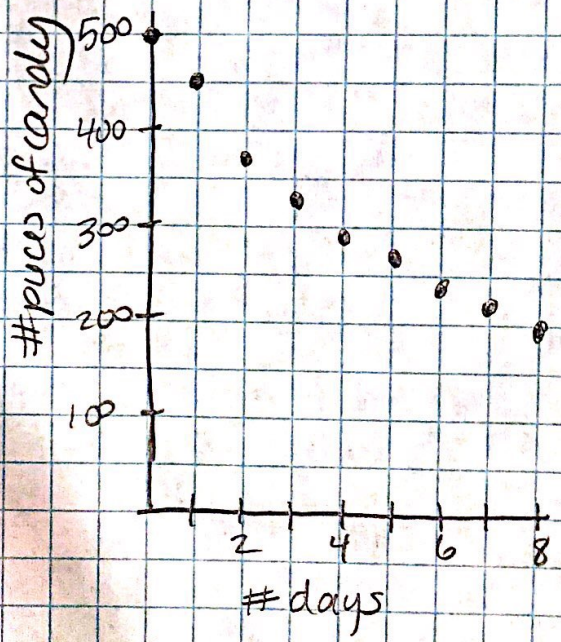

domain: real numbers greater than or equal to zero

(20)



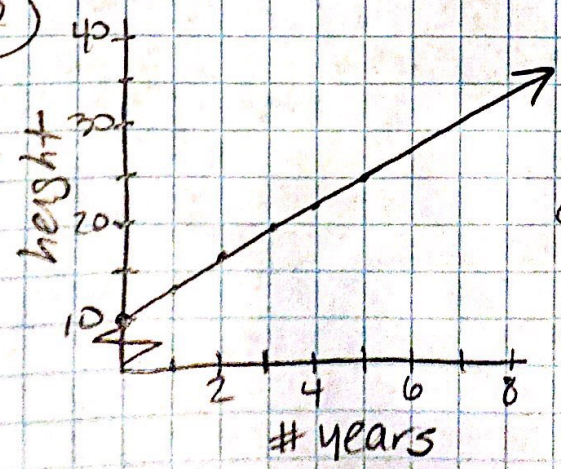

domain: whole numbers

(21)




domain: whole numbers

(22)




domain: real numbers greater than or equal to zero