Name KEY!

CHAPTER 1 TEST REVIEW

1) In the formula $d = \frac{n(n-3)}{2}$, find d when $n = 17$.

$d = \frac{17(17-3)}{2}$, $\boxed{d = 119}$

2) If $d = \frac{1}{2}gt^2$, find d when $g = 32$ ft/sec^2 and $t = 2.5$ sec.

$d = \frac{1}{2} \cdot 32 \cdot 2.5^2$, $\boxed{d = 100}$

3) Evaluate $20{,}000(.9)^n$ to the nearest hundreth when $n = 10$.

$20{,}000\,(.9)^{10} = \boxed{6973.6}$

4) If $f(x) = 2x - 3$, what is $f(4)$?

$= 2 \cdot 4 - 3$

$= \boxed{5}$

5) Suppose $t(n) = 5 - 4n^2$. Then, $t(-2) = ?$

$= 5 - 4(-2)^2$

$= \boxed{-11}$

6) If $M(x) = 3x^2 + 4$, then $M(2k) = ?$

$= 3(2k)^2 + 4$

$= 3 \cdot 4k^2 + 4$ → $\boxed{12k^2 + 4}$

7) Based on the table below, find $g(5)$ and $g(6)$.

x	1	2	3	4	5	6
$g(x)$	3	5	7	9	(11)	(13)

$g(5) = 11$, $g(6) = 13$

Solve each of the following equations. Show your work.

8) $\frac{2}{3}x = 9$

$\left(\frac{3}{2}\right)\frac{2}{3}x = 9\left(\frac{3}{2}\right)$

$\boxed{x = 6}$

9) $\frac{3}{10}(t-20)=\frac{6}{5}$

$\frac{3}{10}t - 6 = \frac{6}{5}$ $+6$ $+6$

$\frac{3}{10}t = 7.2$

$\frac{3}{10}$ $\frac{3}{10}$ $\frac{3}{10}$

$t = 24$

10) $4=6a-(2-2a)$

$4 = 6a - 2 + 2a$

$4 = 8a - 2$

$+2$ $+2$

$6 = 8a$

$\frac{6}{8} = \frac{8a}{8}$

$.75 = a$

11) $3-(m+2)=4m$

$3 - m - 2 = 4m$

$+m$ $+m$

$3 - 2 = 5m$

$\frac{1}{5} = \frac{5m}{5}$

$.2 = m$

12) $\frac{1}{2}x + \frac{1}{3}x + 10 = x$

$\frac{5}{6}x + 10 = 1x$

$-\frac{5}{6}x$ $-\frac{5}{6}x$

$\frac{10}{1/6} = \frac{\frac{1}{6}x}{1/6}$

$x = 60$

13) Solve for n in the formula $t = 4 - 5n$.

-4 -4

$\frac{t-4}{-5} = \frac{-5n}{-5}$

$\frac{t-4}{-5} = n$

14) The area of a trapezoid is given by the formula $A=\frac{1}{2}h(b_1+b_2)$. Solve the formula for h.

$\frac{1}{2}$ $\frac{1}{2}$

$\frac{2A}{(b_1+b_2)} = \frac{h(b_1+b_2)}{(b_1+b_2)}$

$\frac{2A}{(b_1+b_2)} = h$

15) Does the table below represent a function? Justify your answer.

x	-1	-1	0	4	-16
y	1	-1	2	0	-4

No, -1 is matched to 1 & -1.

16) Does the set of ordered pairs represent a function? Justify your answer.

{(1, 2), (2, 3), (3, 4), (4, 1)}

Yes, each x value is only matched to one y value.

17) What number(s) are NOT part of the domain (x's) of the function $f(x)=\frac{3}{x^2-25}$?

x=5 is not in the domain since 5^2-25 is 0, & we can't have 0 in the denominator.

Identify the domain and range of each of the following functions.

18) {(2, -2), (3, -3), (-9, 9), (-0.5, 0.5)}

D: 2, 3, -9, -0.5
R: -2, -3, 9, 0.5

19)

x	-2	-1	0	1	2
y	1	-1	1	-1	1

D: -2, -1, 0, 1, 2
R: 1, -1

20) The dimensions of a building are 100 times as large as the dimensions of its model. If the floor on a model is x cm long, give an expression for the floor's length in the actual building.

$x \cdot 100$

21) There are s students per bus and b buses. How many students are there in total?

$s \cdot b$

22) Luis has 20 pieces of gum. He gives a piece to each of his friends. If he has 5 pieces of gum left, how many friends does he have? (Write an equation and solve, even if you can figure out the answer in your head!)

$f + 5 = 20$
$-5 \quad -5$
$f = 15$

He has 15 friends.

23) The famous scientist Galileo found a relationship between the distance $d(t)$ that a dropped object falls in relation to time t. The function is defined by $d(t) = 16t^2$. What is the approximate distance an object will fall in 1.5 seconds?

plug in for t ↓

$= 16 \cdot 1.5^2$
$= 36$

24) The function S defined by $S(x) = x + \frac{x^2}{20}$ relates the stopping distance in feet to the car's speed x in miles per hour. How many feet does it take for a car traveling at 70 mph to stop?

↓ plug in for x

$= 70 + \frac{70^2}{20}$

$= 315$

Refer to the table below for the following questions. Let P(x) represent the population of Philadelphia and B(x) represent the population of Boston in the year *x*.

	Philadelphia	*Boston*
1900	1,290,000	509,000
1950	2,070,000	950,000
1980	1,688,000	787,000
1990	1,586,000	736,000

25) Find $B(1950)$. Explain what this value represents.

950,000 people in Boston in 1950.

26) Calculate $P(1980) - B(1980)$. Explain what this value represents.

1,688,000 − 787,000 = 901,000 more people in Philadelphia than Boston in 1980.

27) Calculate $\frac{B(1990)-B(1980)}{1990-1980}$. Explain what this value represents.

$\frac{736,000-787,000}{10} = \frac{-51,000}{10} = -5.1$

Population in Boston is down -5.1% over 10 yrs

28) A baby blue whale weighs 4000 pounds at birth and gains 200 pounds per day while nursing. Write and solve an equation to find the number of days a baby whale would have been nursing if it weighs 14,000 pounds.

$4000 + 200 \cdot d = 14,000$

$-4000 \quad -4000$

$\frac{200d}{200} = \frac{10,000}{200}$

$d = 50$

29) Central High School has students grades 10-12. If 2/5 of the students are sophomores, 1/3 of the students are juniors and 320 students are seniors, how many students attend Central High?

$\frac{2}{5} \cdot t + \frac{1}{3} \cdot t + 320 = t$

$\frac{11}{15}t + 320 = t$

$-\frac{11}{15}t \quad -\frac{11}{15}t$

$\frac{320}{4/15} = \frac{\frac{4}{15}t}{4/15}$

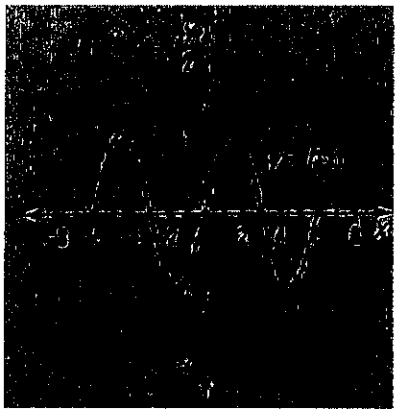
$1200 = t$

30) Write a verbal expression that could be represented by $\frac{x}{2} - 3$.

x divided by 2 minus 3

For each of the graphs below, determine whether or not it is a function.
If it is a function, give its domain and range.

31)

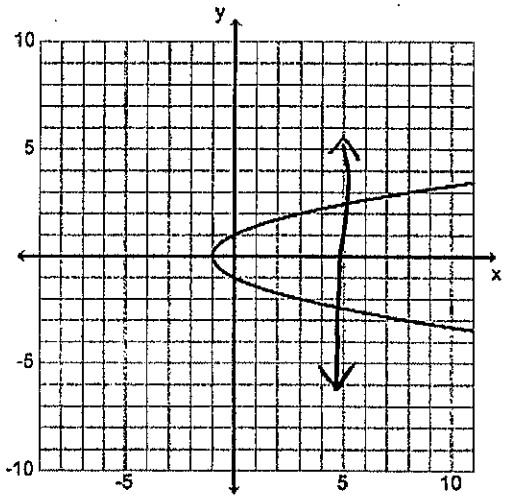


Yes, D: -6 to 6
R: -1 to 1

32)

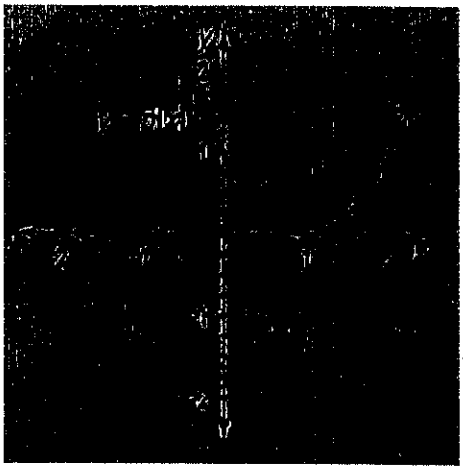
Yes, D: all real #'s
R: 0 & above

33)



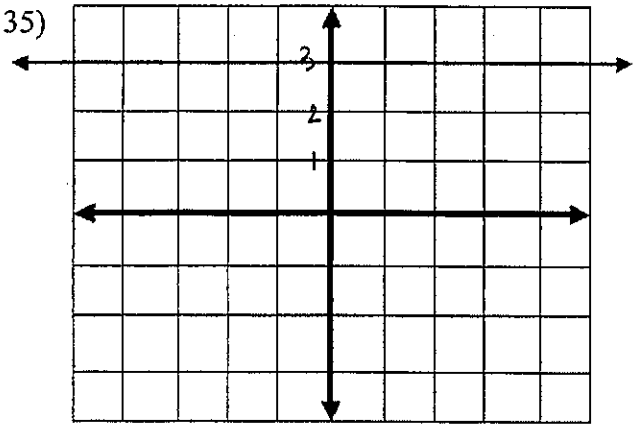
No, doesn't pass VLT.

34)



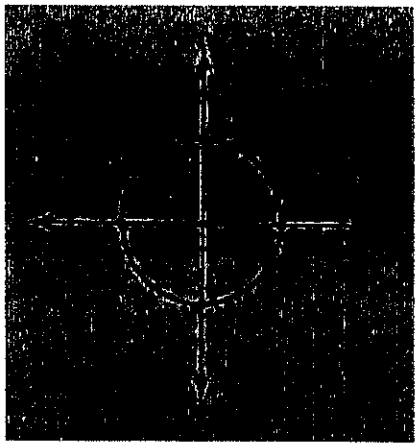
Yes, D: all real #'s
R: 0 & above

35)



Yes, D: all real #'s
R: 3

36)



No, doesn't pass VLT.