

## Review Sheet for Test 1

For full credit **show all your work.**

1) What type of argument is the following:

Andrea enjoyed reading the Dark Tower series by Stephen King, so I know she will like his next novel.

a – Deductive reasoning

b – Inductive reasoning

c – Elementary my dear Watson

d – I don't think Andrea will like his next book!

2) Find the next number in the series:

50, 114, 146, 146, 114, \_\_\_\_

3) Find the third, fourth, and fifth terms of the sequence defined by  $a_1 = 3$ ,  $a_2 = 5$ ,  
 $a_n = 4a_{n-1} - 3a_{n-2}$  for  $n > 3$ .

4) Use the recursive relation  $\text{Next} = 2\text{Now} - \text{Prev}$  to find the third, fourth, and fifth terms of the sequence where 0 and 7 are the first two terms.

5) A shirt and tie together cost \$77. If the shirt is \$20 more than the tie, then what is the price of the shirt?

6) Find the third, fourth, and fifth terms of the sequence defined by  $a_1 = -1$ ,  $a_2 = 3$ ,  $a_n = 3a_{n-1} + 2a_{n-2}$  for  $n > 2$ .

7) Use the recursive relation  $\text{Next} = 2\text{Now} - \text{Prev}$  to find the third, fourth, and fifth terms of the sequence where 1 and 4 are the first two terms.

1	1
2	4
3	
4	
5	

8) Use the recursive relation  $a_n = 2a_{n-1} - a_{n-2}$  for  $n > 2$  to find the third, fourth, and fifth terms where 1 and 4 are the first.

$a_1$	1
$a_2$	4
$a_3$	
$a_4$	
$a_5$	

9) Find the third, fourth, and fifth terms of the sequence defined by  $a_1 = 1$ ,  $a_2 = 3$ ,  $a_n = 2a_{n-1} - 2a_{n-2}$  for  $n > 2$ .

$a_1$	1
$a_2$	3
$a_3$	
$a_4$	
$a_5$	

10) Solve the equation:

$$-\frac{3}{4}x = 24$$

11) Solve the equation:

$$3m + 8 = 2 - 6m$$

12) Write as a unit rate: 1000 square feet of wall covered with 2.5 gallons of paint.

13) The monthly car payment on a 5-year car loan at 9% can be calculated by using the formula  $P = 0.02076 L$ , where  $P$  is the monthly payment amount and  $L$  is the loan amount. If Sonny can afford a \$500 monthly payment then what is the max. loan amount?

14) Solve the proportion:  $\frac{3.7}{2.4} = \frac{3.4}{x}$

15) The ratio of weight on the moon to weight on Earth is 1:6. How much would a 264 pound 'moon monster' weigh on Earth?

16) The dosage of cold medication is 2 mg for every 80 pounds of body weight. How many mg should Ben get if he weighs 18 pounds?

17) A pancake (with syrup) four inches in diameter contains 12 grams of fat. How many grams of fat are in a pancake and syrup six inches in diameter?

18) Write the equation in standard form and solve:  $r^2 - 3r = 10$ .

19) Todd's construction company has a couple different housing plans. One of them uses the equation  $B = 2n^2 + 1$  to determine how many blocks go into a project where  $B$  is the number of blocks and  $n$  is the project number. Determine which project number uses 51 blocks.

20) Write in standard form and solve:

$$4 - 15x = 4x^2$$

21) A model rocket is launched with an initial velocity of 200 feet per second. The height  $h$ , in feet, of the rocket  $t$  seconds after the launch is given by  $h = -16t^2 + 200t$ . How many seconds after the launch will the rocket be 500 feet above the ground? (To two decimal places.)

22) Sketch a graph of the equation  $y = |x - 1|$  and find  $x$  and  $y$  intercepts.

23) Write in standard form and solve:

$$2y + 4 = y^2 - y - 6.$$

24) Find the  $x$ -intercept and  $y$ -intercept of the graph of  $\frac{x}{2} + \frac{y}{3} = 1$ .

25) Karen is throwing an orange at her brother Saul, who is standing on the balcony of their home. The height  $h$ , in feet, of the orange above the ground  $x$  seconds after it is thrown is given by  $h(x) = -16x^2 + 32x + 4$ . If Saul's outstretched arms are 27 feet above the ground, will the orange ever be high enough so that he can catch it?

$x$ -intercept:

$y$ -intercept:

Meaning:

Meaning: