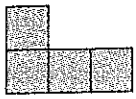
Grade 6 Patterning and Algebra Name_____

Term 1 - Patterning - Pre-Test Benchmark Assessment Form_____ #_____

#1 The first 3 terms of a pattern made of squares is shown below.



Term 1

Term 2

Term 3

a) Draw the next 2 images below

Term 4

Term 5

b) If the first two terms of the sequence can be represented by 4, 6, what numbers would represent the 4th and 5th terms for the pattern?

A. 10, 14 B. 8, 12 C. 8, 10 D. 10, 12

c) What is the **perimeter** of Term 5? _____

Show your work here.

#2 Consider the pattern below.

625, 125, 25, 5, …

Which is the pattern rule? To get the next term, …

a) divide each term by 5

b) subtract 100

c) multiply each term by 5

d) divide by 25

#3 The chart below shows the first 4 terms of 2 non-repeating patterns.

Pattern	Terms
W	15, 18, 21, 24, …
X	960, 480, 240, 120, …

If the 2 patterns continue, which pattern will reach 30 first?

A) Pattern W

B) Pattern X

Show your work here.

#4 Consider the pattern below.

45, 51, 57, 63, …

Which is the pattern rule? To get the next term, …

a) add 5 to each term

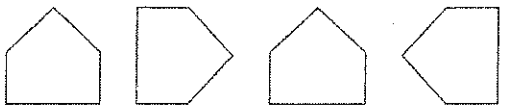
b) add 6 to each term

c) multiply each term by 5

d) double each term

#5 Pattern A is created by repeating the 4 terms below in order over and over again.

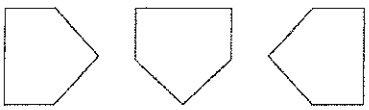
Pattern A



Term number	1	2	3	4

Pattern B is created by repeating the 3 terms below in order over and over again.

Pattern B



Term number	1	2	3

Find the matching term number in both patterns that has also has a matching image orientation.

Show your work here.

Grade 6 Patterning and Algebra Name_____

Term 1 - Patterning - Mid Benchmark Assessment #1 Form_____ #_____

#1 The first 4 terms of a pattern is 6, 11, 16, 21, …

a) To get the next term, I need to _____

b) The patterning rule is…

Start with _____ and then _____

c) The 5th term is _____

d) The 20th term is _____

Show your work here.

#2 Consider the repeating pattern below.

If the pattern continues in the same way, what will the 54th term be?

a 

b 

c 

d 

Show your work here.

#3 The chart below shows the first 4 terms of 3 non-repeating patterns.

Pattern	Terms
W	15, 20, 25, 30, ...
X	120, 110, 100, 90, ...
Y	14, 20, 26, 32, ...

If the 3 patterns continue, which pattern will reach 50 first?

A) Pattern W B) Pattern X C) Pattern Y

Show your work here.

#4 Complete the table of values using the pattern rule: Start at 32 and increase by 4

Term Number	Term Value
0	
1	
2	
3	

#5 Consider the pattern rule: Start at 2 and increase by 4 each time.

a) The first 4 terms would be _6_, _____, _____, _____

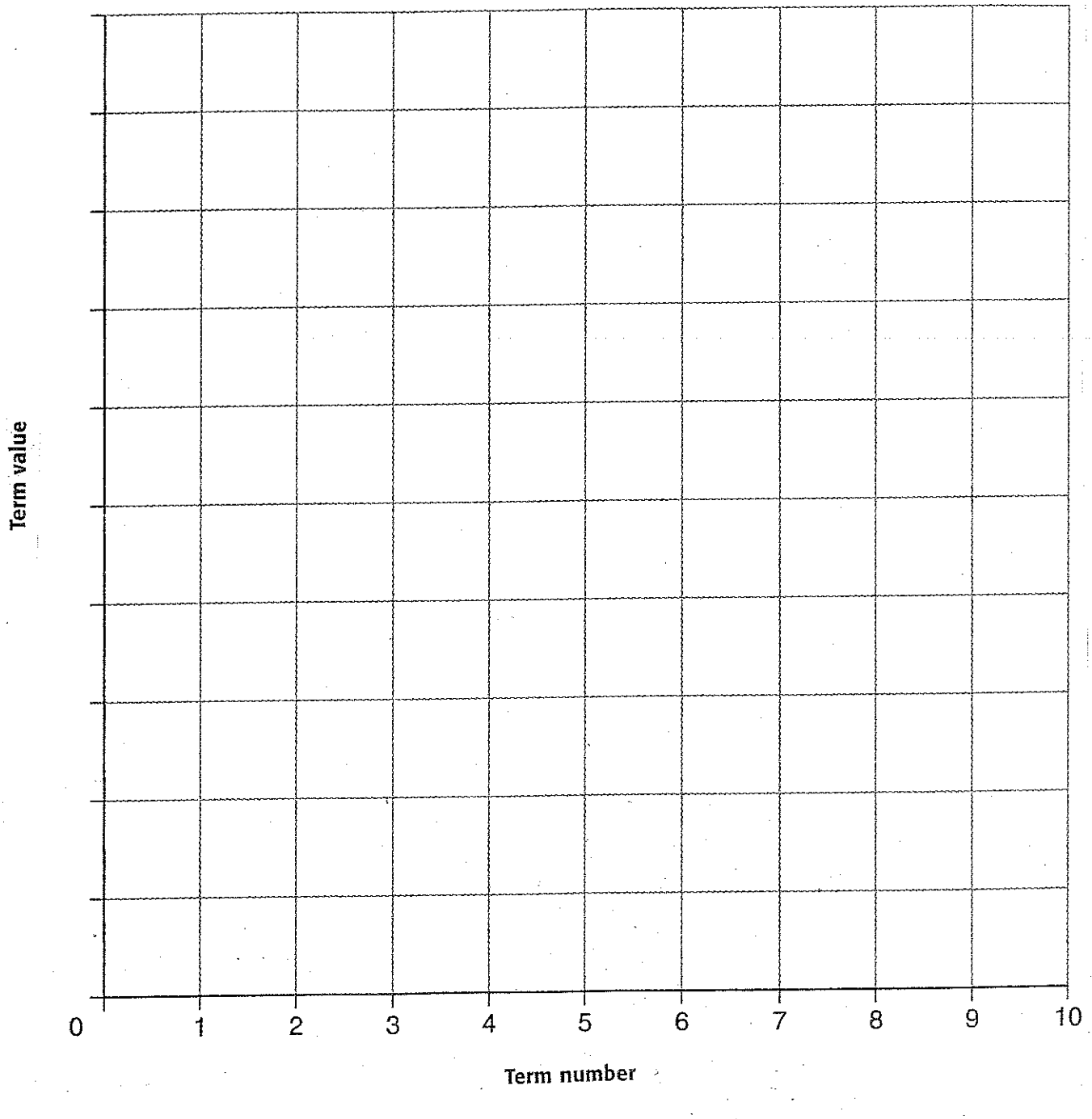
b) The term 0 would be _____

c) The 15th term would be _____

d) Complete the table of values for this rule

Term Number	Term Value
1	
2	
3	
4	

e) Graph the rule on the graph below (only the first 4 ordered pairs). Remember that the term number is always on the bottom (horizontal) axis and the term value is always on the left (vertical) axis.



Performance Task 1: How Much Will Riley Win?

(page 1)

Riley has been selected to be on a game show. The more questions he answers correctly, the more prize money he wins. For example:

- If Riley gets Question 1 correct, he wins $4.
- If Riley gets Question 2 correct, he wins $12.
- If Riley gets Question 3 correct, he wins $20.
- If Riley answers Question 1 and Question 2 correctly, but gets Question 3 wrong, he wins $12.

1. Describe the pattern for the prize money Riley might win. Write a rule to describe this pattern.

2. Create a table of values that shows the question numbers and the prize money won for the first 10 questions.

Question	Money won ($)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Name: _____ Date: _____

Performance Task 1: How Much Will Riley Win?

(page 2)

3. Riley has a goal of winning at least $100. Is this possible according to the prize-winning pattern described on page 1? When will he have won $100? Explain your answer.

4. Riley is asked to be a contestant on a different game show. Create 2 different prize-winning options for Riley to choose from.

   - Each of the prize-winning options should be based on a growing pattern.
   - Prize-winning Option A should be the better choice for getting each of the first five questions correct.
   - Prize-winning Option B should be the better choice for getting Question 6 correct and every question after that.

   Create and describe your 2 prize-winning options.

Prize-winning Option A	Prize-winning Option B

Name: _____ Date: _____

Performance Task 1: How Much Will Riley Win?

(page 3)

5. **a)** If Riley answers Question 4 correctly, how much more money will he win with prize-winning Option A than with prize-winning Option B?

b) If Riley answers Question 9 correctly, how much more money will he win with prize-winning Option B than with prize-winning Option A?

Grade 6 Patterning and Algebra Name_____

Term 1 - Patterning - Final Benchmark Assessment Form_____ #_____

#1 The chart below shows the first 4 terms of 4 non-repeating patterns.

Pattern	Terms
W	15, 18, 21, 24, ...
X	100, 90, 80, 70, ...
Y	14, 18, 22, 26, ...
Z	85, 74, 63, 52, ...

If the 4 patterns continue, which pattern will reach 30 first?

F. Pattern W

G. Pattern X

H. Pattern Y

J. Pattern Z

Show your work here.

#2 Two flags are spinning around point A. Each flag makes a 1/4 turn in a clockwise direction every minute. The four pictures show the position of the flags and the time the image was taken.

a) Sketch what the flag will look like at 1:10 p.m. in the box below.

Show your work here.

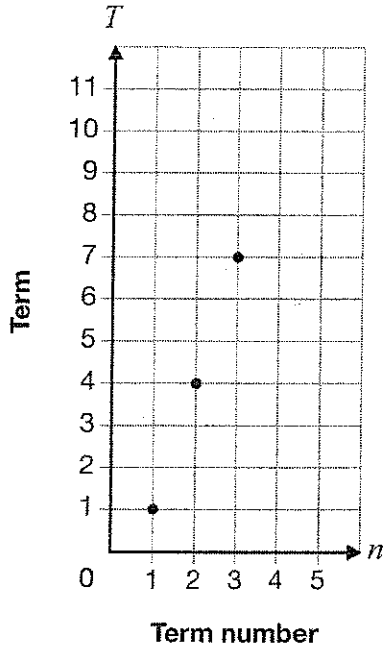
b) How did you come up with your answer above.

Show your work here.

#3 Complete the table of values using the rule: Start at 30 and decrease by 7

Term Number	Term Value
0	
1	
2	
3	

#4 Consider the growing pattern shown on the grid below.



The pattern continues in the same way.

a) Mark a dot to show the next point on the graph above that would follow the pattern.

b) What is the coordinate of the point? (_____,_____)

c) What is the pattern rule?

For the next term value you need to… _____

#5 Consider the pattern: 1161, 387, 129, 43

Which is its pattern rule? To get the next term,

A. divide each term by 3.

B. divide each term by 4.

C. subtract 86 from each term.

D. subtract 774 from each term.