Section 1.3 – Practice Questions

Study the pattern, predict the n^{th} term.

1. 1, 2, 3, ..., n

n = 1 2 3

2. 1, 3, 5, ..., 2n − 1

n = 1 2 3

2n − 1

3. 2, 4, 6, ..., 2n

4. 3, 7, 11, 15, ..., 4n − 1

5. 10, 17, 24, 31, ..., 7n + 3

+7 each time

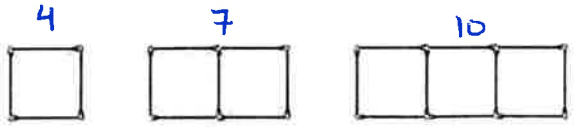
7n + 3

6. 0, 6, 12, 18, ..., 6n − 6

7. 0, 2, 6, 12, ..., n(n − 1)

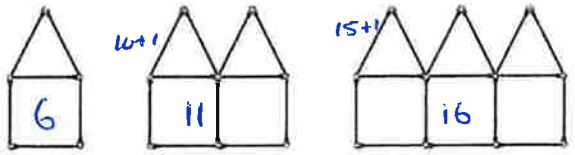
8. 1, 6, 15, 28, ..., $2n^2 - n$

Determine the number of matchsticks in the n^{th} pattern

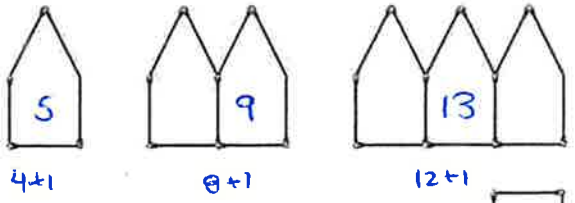
9. 

3n + 1

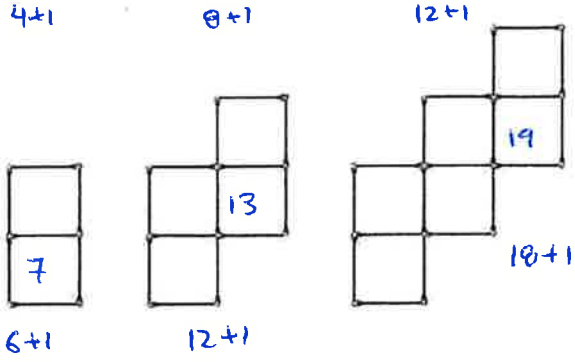
3n + 1

10. 

5n + 1

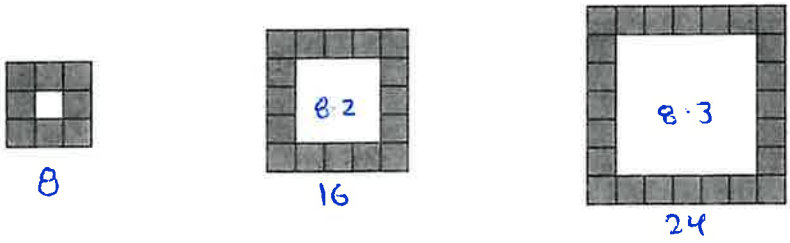
11. 

4n + 1

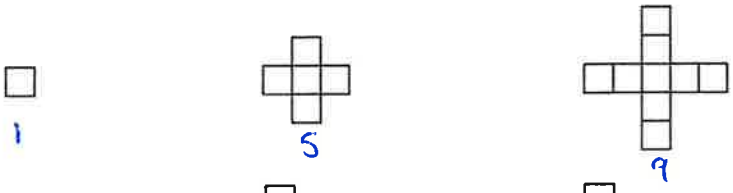
12. 

6n + 1

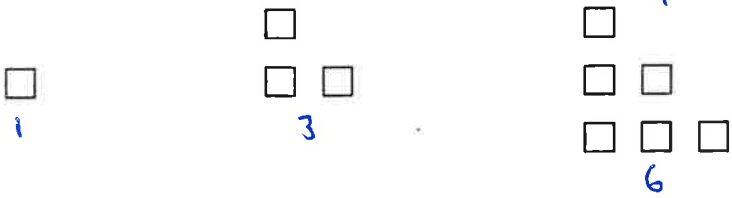
Study the pattern and predict the n^{th} term

13. 

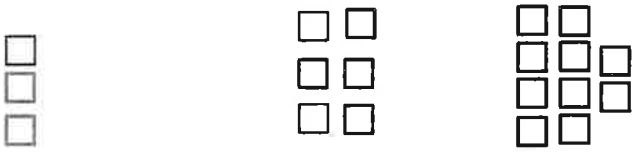
$8n$

14. 

$4n-3$

15. 

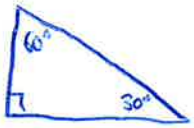
$\frac{n(n+1)}{2}$

16. 

$\frac{(n+1)(n+2)}{2}$

When possible, find a counter example. If not write 'true'

17. The acute angles in a right triangle are equal



18. A real number to the zero power is one

0^0 is undefined

19. For any real number x, $x^2 > x$

consider a proper fraction

$\left(\frac{1}{2}\right)^2 = \frac{1}{4}$ $\quad \frac{1}{4} > \frac{1}{2}$ is not true

20. The second power of any real number is positive

True

21. For any real number, x, $-x$, is a negative

if $x = -1$

$-(-1) = 1$

22. An even number is any number which is not odd

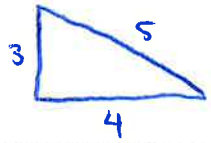
True

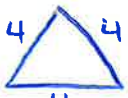
Tell whether the statement is **true** or **false.** If false, give a counterexample

23. If a triangle has two equal sides, then it has equal angles

True

24. If two triangles have equal perimeters, then they have equal sides





25. If $x^2 > 0$, then $x > 0$

let $x^2 = (-1)^2 > 0$

but $-1 > 0$ is not true

26. The diameter is the axis of symmetry of a circle

True

27. A number is divisible by 4 if the last digit is divisible by 4

False 14 as an example

28. A number is divisible by 12 if it is an even number divisible by 3.

False 66 is an example

29. A number is divisible by 15 if it is an odd number divisible by 5

False 35 is an example

30. A number is divisible by 18 if it is an even number divisible by 9

True

Reach a conclusion using the following assumptions

31. All citizens of Calgary are Albertans
All Albertans are Canadians

citizens of Calgary are Canadians

32. All Manitobans are fishermen
Sue is a Manitoban

Sue is a fisherman

33. All rectangles are quadrilaterals
All squares are rectangles

Squares are quadrilaterals

34. All whales are mammals
All mammals can swim

whales can swim

35. If you study for the exam you will pass
You study for the exam

You will pass

36. a is greater than b
b is equal to c

a is greater than c

Use deductive reasoning to reach a conclusion based on the given assumption of a triangle
(Every question represents an independent scenario)

37. One angle is 80°

The other 2 angles add to 100°

38. One angle is 80° and the other 2 angles are equal

They are 50° each

39. All 3 angles are equal

All angles are 60°

40. All three angles are consecutive integers

think 60 - 60 - 60
take 1 add 1
59 - 60 - 61

41. The middle angle is 10° more than the smallest angle, which is half the amount of the largest angle

smallest

a_1 a_2 a_3

$\frac{1}{2}a^3 = a_1$ a_1+10

$a^3 = 2a_1$

$a_1 + a_2 + a_3 = 180°$

$a_1 + a_1 + 10 + 2a_1 = 180$

$4a_1 + 10 = 180$

$4a_1 = 170$ $a_1 = 42.5°$

42. What is the sum of the angles in a pentagon? (5 sides)

consider

90 + 90 + 90 + 135 + 135

540°

43. All members of the volleyball team are over 6 feet tall. What, if anything, can you deduce with a certainty about each person?

a) Sue is on the Volleyball Team

Sue is over 6ft Tall

b) Tom is over 6ft tall

Nothing

c) Mary is 5'6" tall

Not on the Volleyball Team

d) Bert is not on the Volleyball Team

Nothing

44. A person must be 12 years old or over to have a fishing license. What can be deduced with certainty about each person?

a) Sally has a fishing license

She is at least 12 yrs old

b) Bill went fishing

Nothing

c) Lora is 15 years old

Nothing

d) George is under 12 years old

Does not have a fishing license

e) Tim does not fish

Nothing

Answer Key – Section 1.3

1. n	2. $2n-1$	3. $2n$	4. $4n-1$	5. $7n+3$	6. $6n-6$
7. $n(n-1)$	8. $n(2n-1)$	9. $3n+1$	10. $5n+1$	11. $4n+1$	12. $6n+1$
13. $8n$	14. $4n-3$	15. $\frac{n(n+1)}{2}$	16. $\frac{(n+1)(n+2)}{2}$		

For $17-44$: *See Website*

Extra Work Space