Introduction to arithmetic and geometric sequences

Arithmetic series

Geometric series

17.	92, 81, 70, 59...		
	A	G	N
18.	1, 4, 16, 64...		
	A	G	N
19.	7, 7, 7, 7...		
	A	G	N
20.	2, 5a, 9a, 13a...		
	A	G	N

Arithmetic and geometric series.

What is a series? The most common example we can think of is probably a TV series – we watch the first episode, then the next that follows that and the one after that etc.

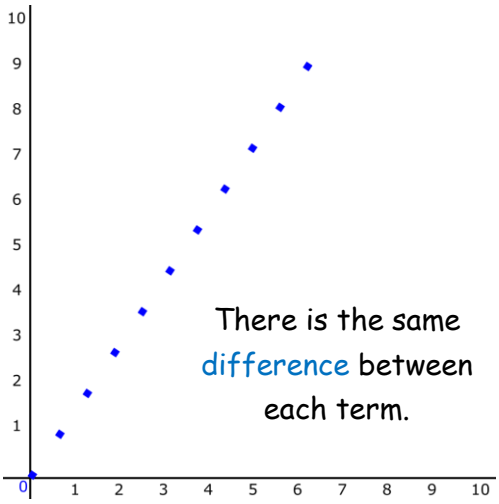
A series of numbers is something similar – we start with one number, and this is followed by other numbers. There are two types of series to introduce here:

Arithmetic series

The numbers in this series increase or decrease by the same amount.

There is the same difference between each number in the series.

Example: 4, 7, 10, 13… each following term increases by 3. There is a difference of 3 between each term.

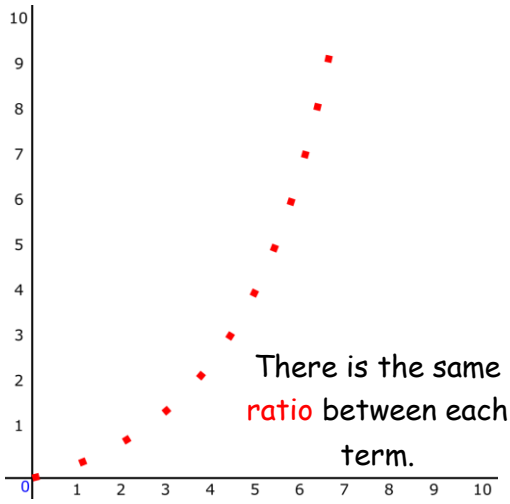


Geometric series

The numbers in this series are multiplied by the same amount.

There is the same ratio between every number in the series.

Example: 2, 4, 8, 16…each following number is multiplied by 2. There is a ratio of 2 between each term.



Identify each of the series below as arithmetic, geometric or neither.

1.	7, 23, 39, 55…		
	A	G	N
2.	96, 48, 24, 12…		
	A	G	N
3.	17, 12, 8, 2…		
	A	G	N
4.	8, 12, 16, 19…		
	A	G	N

5.	92, 81, 70, 59…		
	A	G	N
6.	1, 4, 16, 64…		
	A	G	N
7.	7, 7, 7, 7…		
	A	G	N
8.	2, 5a, 9a, 13a…		
	A	G	N

9.	38, 50, 61, 71…		
	A	G	N
10.	x, x^3, x^5, x^7…		
	A	G	N
11.	12, –12, 12, –12…		
	A	G	N
12.	31, 40, 48, 55…		
	A	G	N

Arithmetic and geometric series – ANSWERS.

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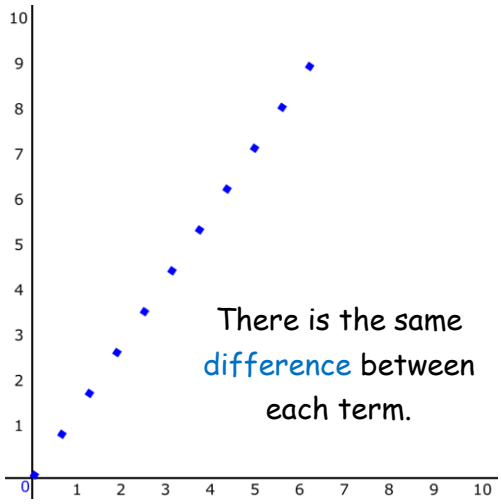

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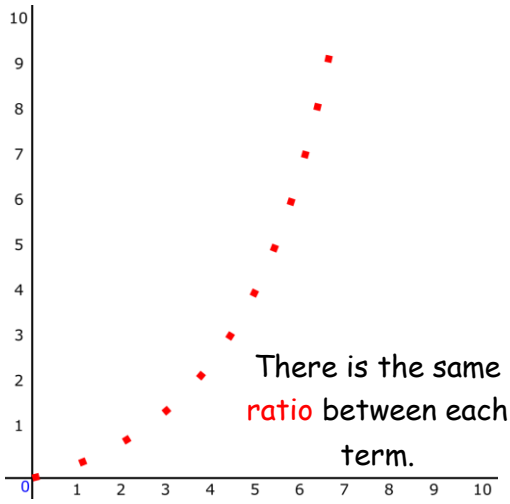

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13.	7, 23, 39, 55…		
	A	G	N
14.	96, 48, 24, 12…		
	A	**G**	N
15.	17, 12, 8, 2…		
	A	G	**N**
16.	8, 12, 16, 19…		
	A	G	**N**

17.	92, 81, 70, 59…		
	A	G	N
18.	1, 4, 16, 64…		
	A	**G**	N
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	A	**G**	N
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21.	38, 50, 61, 71…		
	A	G	**N**
22.	x, x^3, x^5, x^7…		
	A	**G**	N
23.	12, –12, 12, –12…		
	A	**G**	N
24.	31, 40, 48, 55…		
	A	G	**N**

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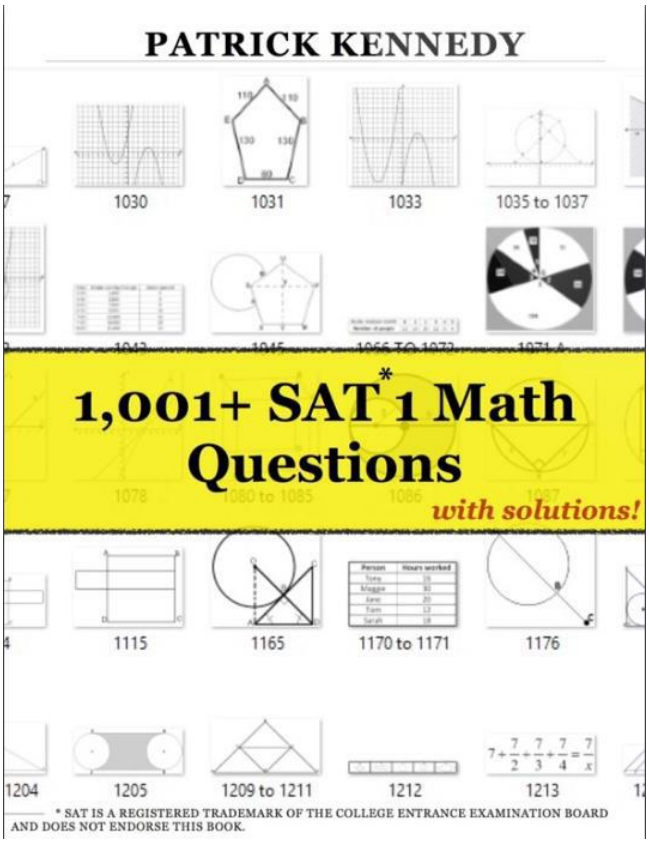
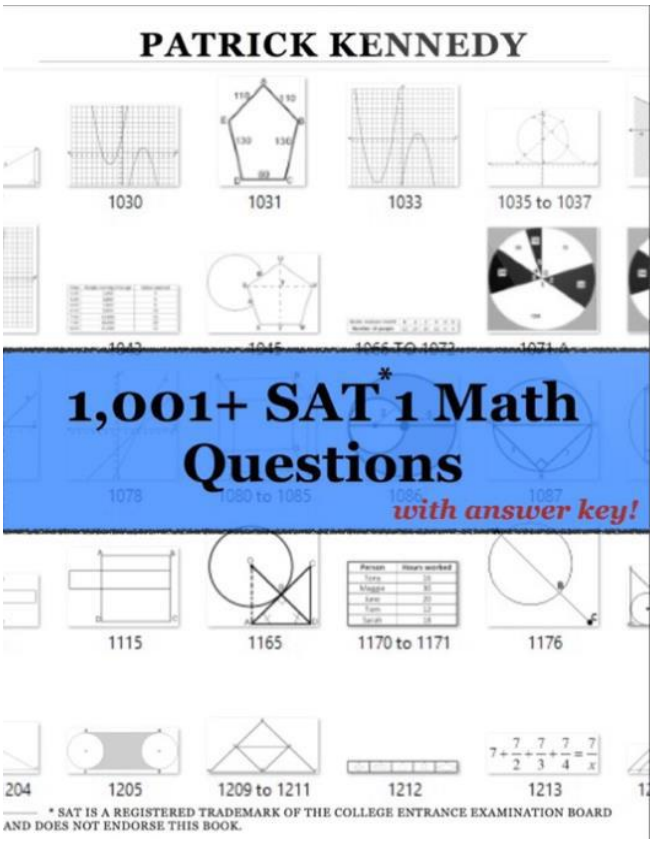
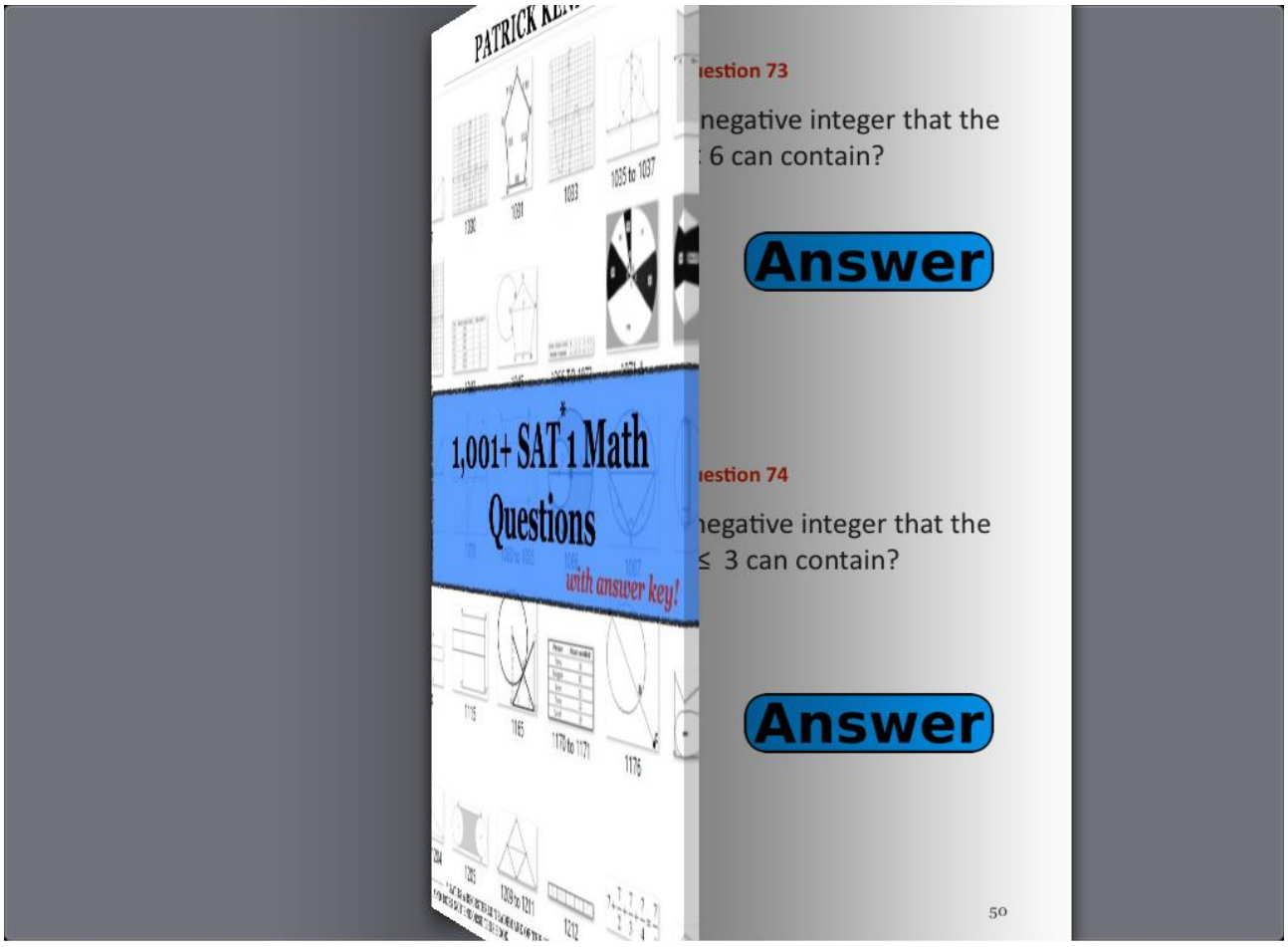






Question 1001

x is a number such that when x is divided by 7, there is a remainder of 3, but when it is divided by 5, there is no remainder. Which of the following could be the

A. 10

B. 12

C. 45

D. 90

E. 110

Answer

Question 1002

$\frac{-5}{2}$ of $\frac{2}{3}$ of $\frac{3}{4}$ of $\frac{4}{5}$ of $\frac{5}{4}$ of $\frac{4}{3}$ of $\frac{3}{2}$ of $\frac{-2}{7}$ =

A. $\frac{7}{5}$

$$-\frac{5}{2}of\frac{2}{3}of\frac{3}{4}of\frac{4}{5}of\frac{5}{4}of\frac{4}{3}of\frac{3}{2}of-\frac{2}{7}=\left(-\frac{5}{2}\right)\left(\frac{2}{3}\right)\left(\frac{3}{4}\right)\left(\frac{4}{5}\right)\left(\frac{5}{4}\right)\left(\frac{4}{3}\right)\left(\frac{3}{2}\right)\left(-\frac{2}{7}\right)$$

$$-\frac{5}{2}of\frac{2}{3}of\frac{3}{4}of\frac{4}{5}of\frac{5}{4}of\frac{4}{3}of\frac{3}{2}of-\frac{2}{7}=\left(-\frac{5}{1}\right)\left(-\frac{1}{7}\right)$$

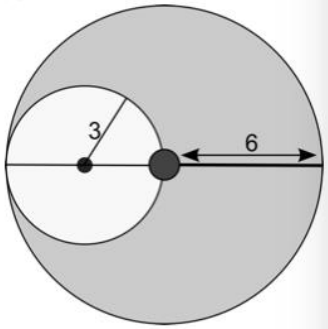
$$-\frac{5}{2}of\frac{2}{3}of\frac{3}{4}of\frac{4}{5}of\frac{5}{4}of\frac{4}{3}of\frac{3}{2}of-\frac{2}{7}=\left(\frac{5}{7}\right)$$

(Answer is B)

Answer

Question 1086

What is the area of the shaded region in the diagram below?



A. 18π

B. 9π

C. 36π

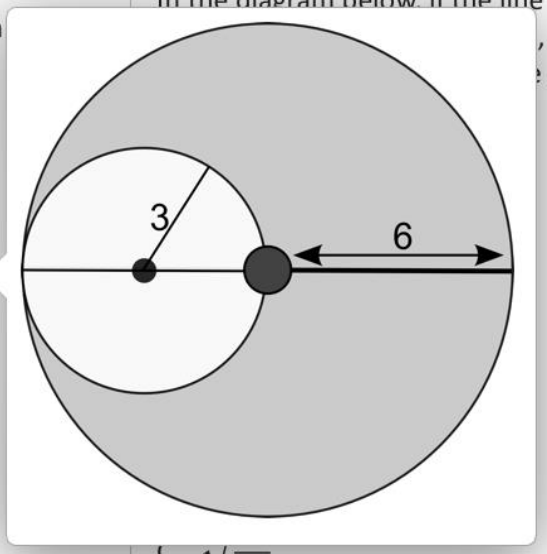
D. 27π

E. 4π

Answer

Question 1087

In the diagram below, if the line AC goes , what is the circumfer-



C. $\sqrt{2}$

D. $\frac{\sqrt{58}}{2}$

E. $\sqrt{29}$

Answer

Digit: A number that represents a certain unit or part of a number. (See also units)

Distinct: This means unique, completely different from all the rest, the only one of its kind present. Be careful! It is easy to make a mistake with questions that have this word in it, look at the sample question below.

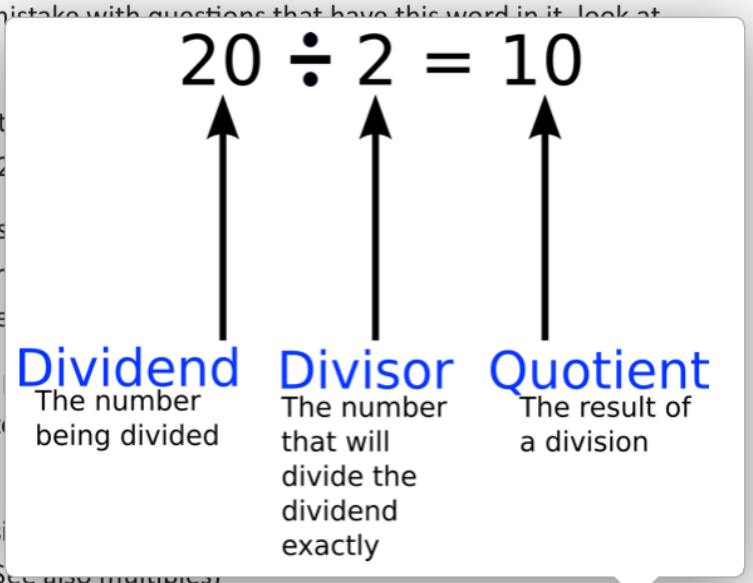
Sample Question: What is the highest 1,5,5,6,8,11,11,12,12,12,16,16,21,22,2

Answer: The highest distinct integer is the number 22 is not distinct; there ar est distinct/unique integer, in this case

Divisible: This means "can be divided that 10 can be perfectly divided by 2 t ber is 5 in this case).

For example, 10 is NOT perfectly divisi ber, we get 1 with a remainder of 3. (See also multiples)

Divisor: A number that will divide another number exactly.



Diagram