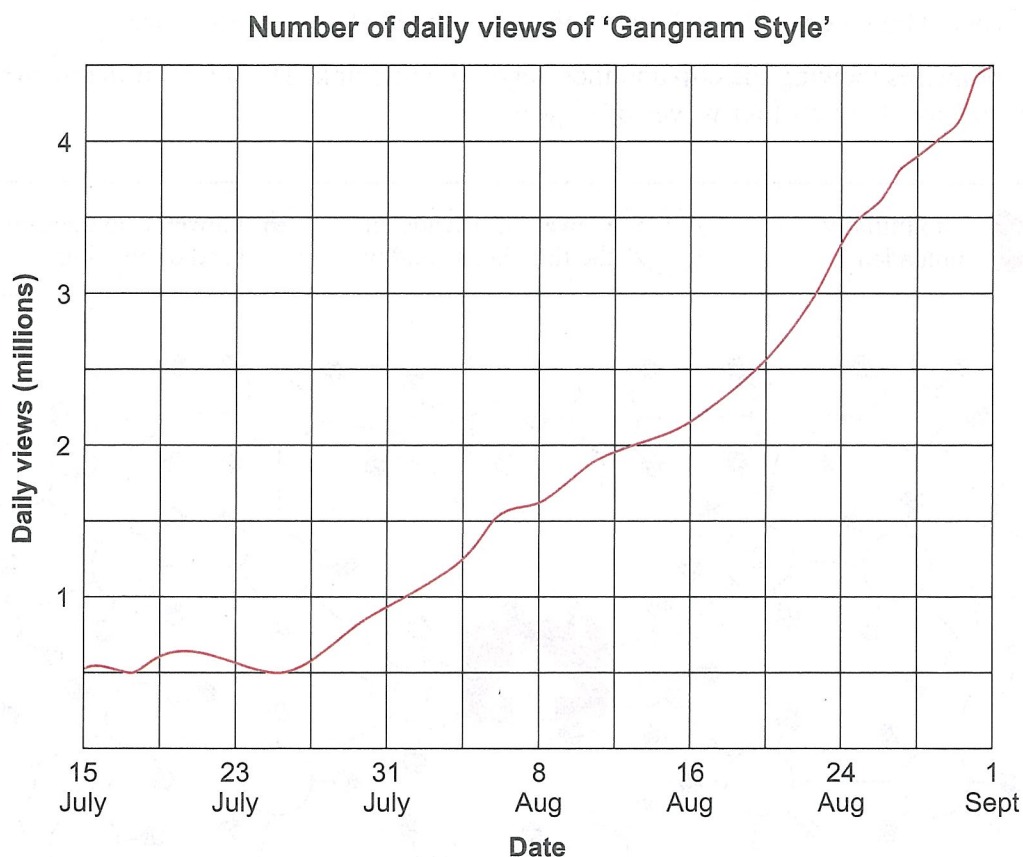


UNIT FIVE

On 15 July 2012, Korean pop singer Psy uploaded his video clip 'Gangnam Style'. Within two days it had been viewed a total of more than one million times and was well on its way to becoming more successful than any previous video clip. The number of daily views first exceeded five million on 3 September 2012. The graph of how its popularity grew throughout July and August 2012 is shown below.



ITEM 8 [***]

- I. How much time elapsed between when the number of **daily** views was one million and when it was two million? Show relevant markings on the graph to justify your response.
.....
- II. Use the information provided by the graph to estimate the **total** number of times the video clip was viewed during the last **week** of August.

Show your working.

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.....

Figure 1 represents the way a different video clip begins to go viral soon after it is initially uploaded. The video clip is shared by sending on a link to the clip. The diagram models the spread across the web when the video clip is shared. Some simplifying assumptions have been made and are listed below.

- The two-minute clip is viewed by five people as soon as it is initially uploaded.
- Ten minutes after viewing it, two out of every five viewers send the link on to five other people, none of whom has already received it.
- Everyone who receives the link views the clip immediately but only once.

A 'wave' comprises viewing the clip and then sending on its link. The intent of the diagram in Figure 1 is to show the first four waves of viewers.

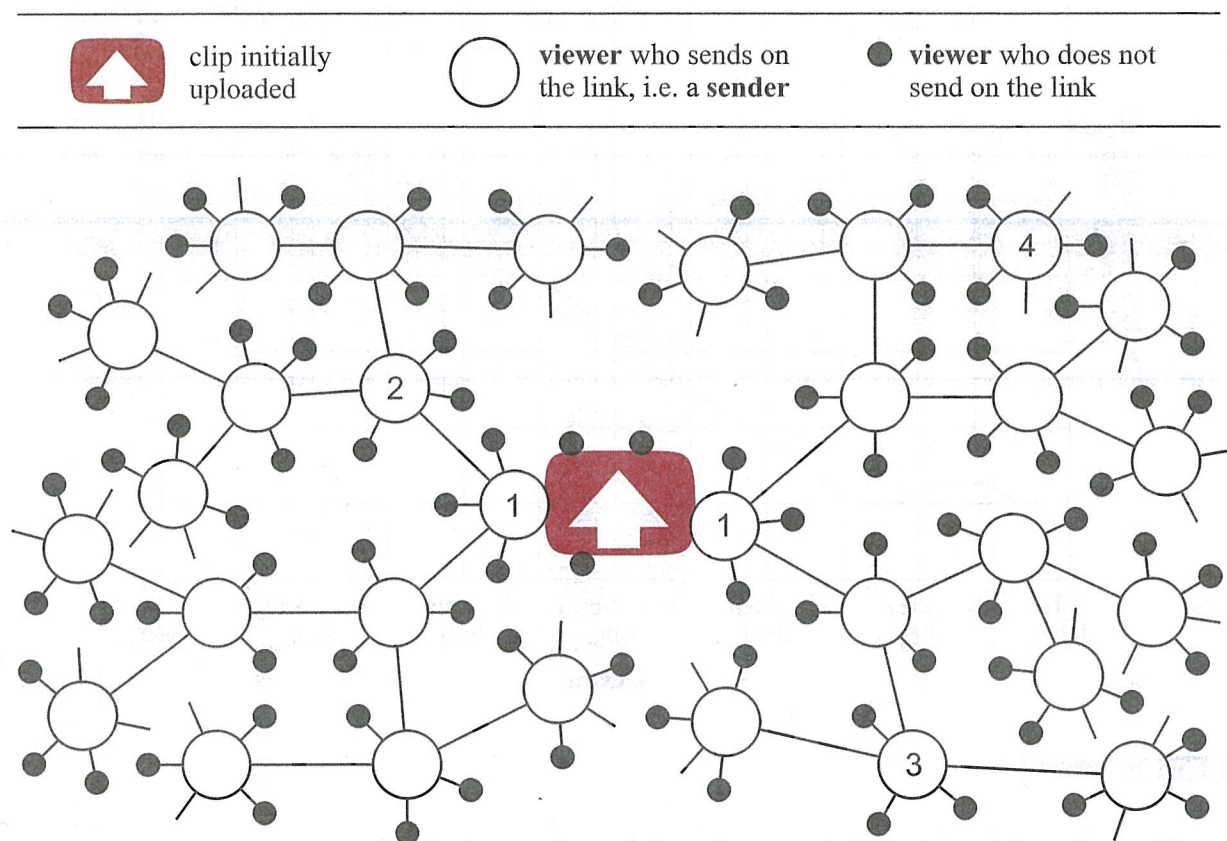


Figure 1

A copy of this diagram
is provided on p. 25.

ITEM 9 [****]

- I. In the diagram in Figure 1, some of the senders have been numbered to indicate which of the first four waves of viewers they belong to.

Complete the numbering of the senders in the diagram in Figure 1 by writing the appropriate number in each of the circles.

ITEM 9 (continued)

The table below shows the number of views of the video clip that featured in Figure 1 from the time it is initially uploaded, then viewed and the link sent on.

wave	time wave completed	viewers (this wave)	senders (this wave)	total views (all waves)
1 st	12 min	5	2	5
2 nd	24 min	10	4	15
3 rd	36 min		8	
4 th				
5 th				

A copy of this table is provided on p. 25.

- II. Fill in the missing values in the table.
- III. Determine the total number of views of the clip in the first two hours after it is initially uploaded.

Show how you arrived at your answer.

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UNIT SIX

In the 1920s a decision was made to eradicate the wolf population in Yellowstone National Park in the USA and by 1926 the last Yellowstone wolves had been killed. The following adapted extract discusses the consequences to the environment of the eradication of the wolves and the subsequent reintroduction of them 70 years later.

When the new wolves in Yellowstone first came calling, the area's elk¹ stood their ground as though they were still dealing with coyotes². Bad plan! Today Yellowstone holds half the elk it did 15 years ago in 1996.

- 5 With a near-unlimited meat supply, Yellowstone's new wolves rapidly multiplied. But by 2008 their numbers had fallen. Doug Smith leads the Yellowstone Wolf Project. He says, 'Numbers of wolves never got as high as we expected based on the availability of prey. Wolves move in packs and are very selective hunters. What counts for them is vulnerable prey.' Pack-hunted elk turn into less vulnerable quarry. They become more vigilant and keep on the move more.
- 10 During the wolfless era, herds practically camped at favourite winter dining spots, foraging on the young aspen, willow and cottonwood until the stems grew clubbed and stunted like bonsai plants. Released from such grazing pressure, saplings now shoot up to form lush young groves. More songbirds find nesting habitat within their leafy shade. Along waterways, vigorous willow and cottonwood growth helps
- 15 stabilise stream banks. More insects fall from overhanging stems to feed fish and amphibians.

Notes: ¹species of large deer
²small wild dogs

ITEM 10 [**]

In this extract, the author uses different words and phrases which the reader, by inference, knows to be the elk. Give four different examples of these words or phrases.

Do not include the pronoun, 'they', as one of the four.

•	•
•	•

ITEM 11 [***]

Consider the exclamation, 'Bad plan!' (paragraph one of the extract). State what plan is being referred to, why it is bad and what circumstances led to it.

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