

A Mathematical Medley

Some of my favourite mathematics
inspired by songs

Tom Button



Sun
Caribou

19

Paul Hardcastle

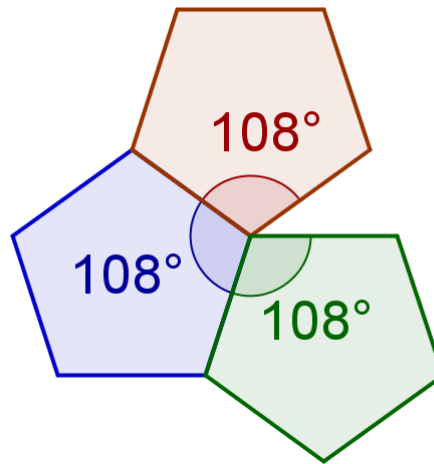
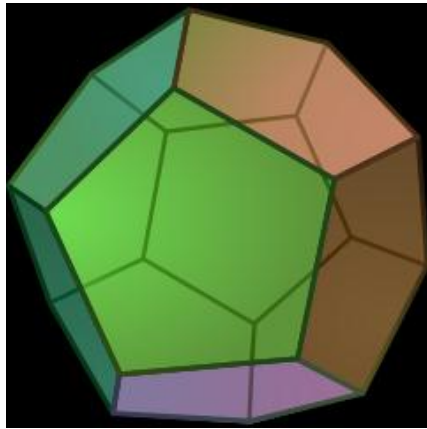


Some positive numbers sum to 19.

What is the maximum possible product?

Dodecahedron

Beth Jeans Houghton



$$3 \times 108^\circ = 324^\circ$$

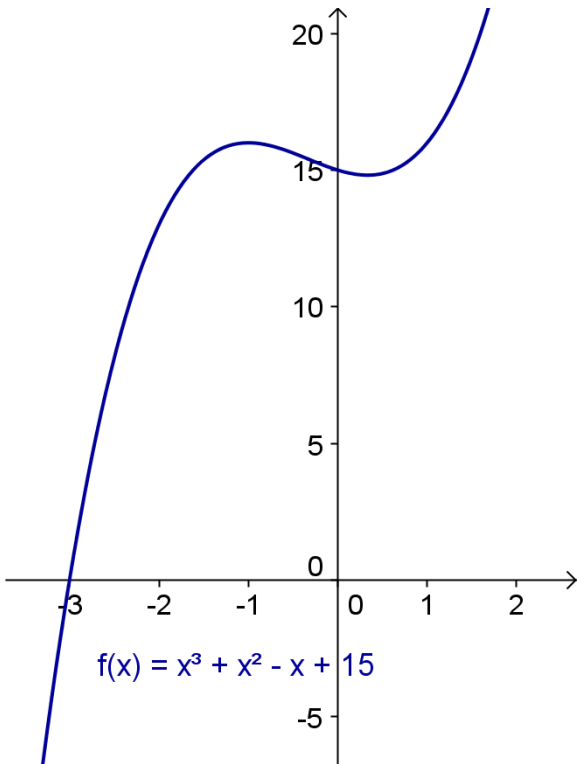
$$360^\circ - 324^\circ = 36^\circ$$

$$720^\circ \div 36^\circ = 20$$

20 vertices

Cubik

808 State



$$f(x) = x^3 + x^2 - x + 15$$

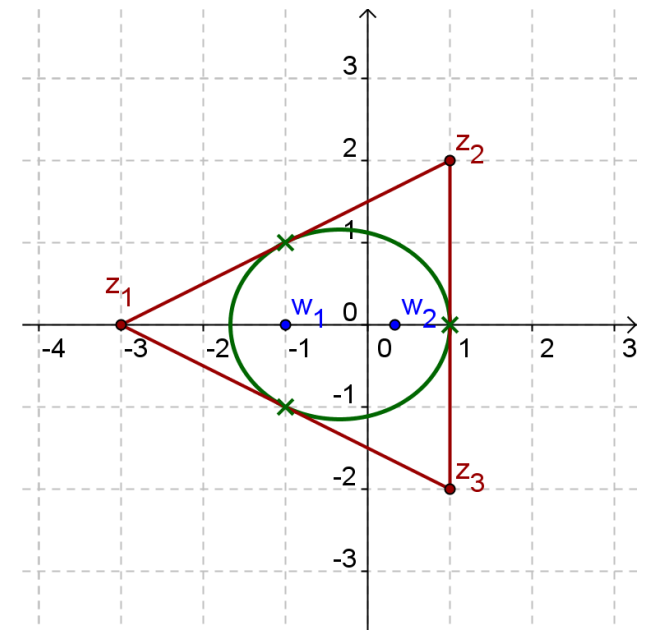
$$f(x) = 0$$

$$x = -3, 1+2i, 1-2i$$

$$f'(x) = 3x^2 + 2x - 1$$

$$f'(x) = 0$$

$$x = -1, \frac{1}{3}$$



$$2+2=5$$

Radiohead



$$-20 = -20$$

$$16 - 36 = 25 - 45$$

$$(2+2)^2 - (2+2) \times 9 = 5^2 - 5 \times 9$$

$$(2+2)^2 - 2 \times (2+2) \times \frac{9}{2} = 5^2 - 2 \times 5 \times \frac{9}{2}$$

$$(2+2)^2 - 2 \times (2+2) \times \frac{9}{2} + \left(\frac{9}{2}\right)^2 = 5^2 - 2 \times 5 \times \frac{9}{2} + \left(\frac{9}{2}\right)^2$$

$$\left(2+2-\frac{9}{2}\right)^2 = \left(5-\frac{9}{2}\right)^2$$

$$2+2-\frac{9}{2} = 5-\frac{9}{2}$$

$$2+2=5$$

Sum song (1)

Target: 108



One
Metallica

+



Half the World Away
Oasis

×



Emergency 72
Turin Brakes

= 108

Sum song (2)

Target: 1560



Wicked and Weird
Buck 65

×



24 Hour Party People
Happy Mondays

= 1560

Sum song (3)

Target: 212,000

< 4 songs?

NCTM tweet

Friday Math Problem: What's the largest prime number that appears in the title of a song?



8675309/Jenny
Tommy Tutone



Timperley 969 1909
Frank Sidebottom

10051729

1 0 0 5 1 7 2 9

1 0 0 5 1 7 2 9

If I'd had more time

I could have found a larger prime *

But if you sing the five with a whine

You can make it rhyme with the nine

*Euclid c. 300BC

Thank you!



Playlist

Sun – Caribou

19 – Paul Hardcastle

Dodecahedron – Beth Jeans Houghton

Cubik – 808 State

2+2=5 – Radiohead

One – Metallica

Half the World Away – Oasis

Emergency 72 – Turin Brakes

Wicked and Weird – Buck 65

24 Hour Party People – Happy Mondays

8675309/Jenny – Tommy Tutone

Timperley 9691909 – Frank Sidebottom

10051729 – Tom Button