



The Incredible Strength of Ants

NAME:

CLASS:

DATE:



Basic

1) Calculate the following:

a) $3^2 + 1^2$

b) $7^2 + 7$

c) $11^2 + 2^2$

d) $9^2 + 8^2$

e) $9^2 - 3^2$

f) $12^2 - 10^2$

2) Calculate the following:

a) 3^3

b) 4^3

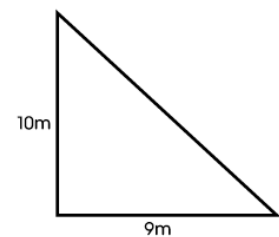
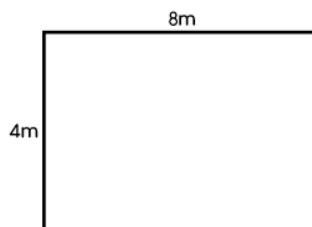
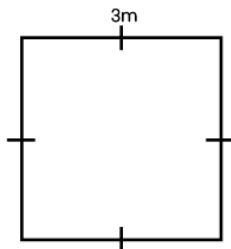
c) 5^3

d) 8^3

e) $6^3 + 1^3$

f) $3^3 + 2^3$

3) Calculate the area of the following shapes:

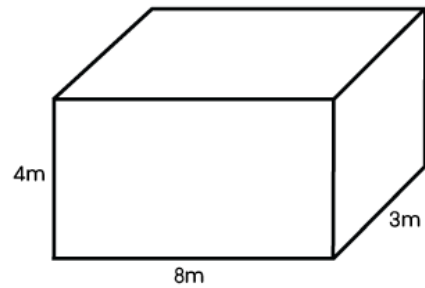
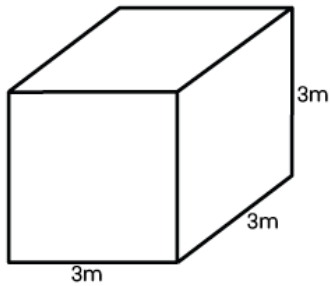




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Basic

4) Calculate the volume of the following shapes:



5) Fill in the table below calculating the area of a square of the given size.

Square	Size of sides	Area	Area \div previous area
a	1		-----
b	2		
c	4		
d	8		
e	16		

In the last column divide the area of the square you are considering by the area of the previous square. Note and discuss your findings.



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Core

1) Calculate the following:

a) $3^2 + 1^2$

b) $7^2 + 7$

c) $11^2 + 2^2$

d) $9^2 + 8^2$

e) $9^2 - 3^2$

f) $12^2 - 10^2$

2) Calculate the following:

a) 3^3

b) 4^3

c) 5^3

d) 8^3

e) $6^3 + 1^3$

f) $3^3 + 2$

3) Fill in the table below calculating the area of a square of the given size.

Square	Size of sides	Area	Area ÷ previous area
a	1		-----
b	2		
c	4		
d	8		
e	16		

In the last column divide the area of the square you are considering by the area of the previous square. Note and discuss your findings.



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Core

4) Fill in the table below calculating the volume of a cube of the given size.

Cube	Size of sides	Volume	Volume ÷ previous volume
a	1		-----
b	2		
c	4		
d	8		
e	16		

In the last column divide the volume of the cube you are considering by the volume of the previous cube. Note and discuss your findings.

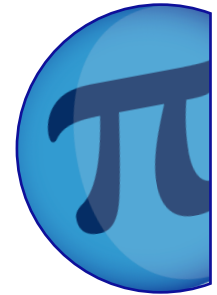


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Advanced

1) Fill in the table below calculating the area of a square of the given size.

Square	Size of sides	Area	Area ÷ previous area
a	1		-----
b	2		
c	4		
d	8		
e	16		

In the last column divide the area of the square you are considering by the area of the previous square. Note and discuss your findings.

2) Fill in the table below calculating the volume of a cube of the given size.

Cube	Size of sides	Volume	Volume ÷ previous volume
a	1		-----
b	2		
c	4		
d	8		

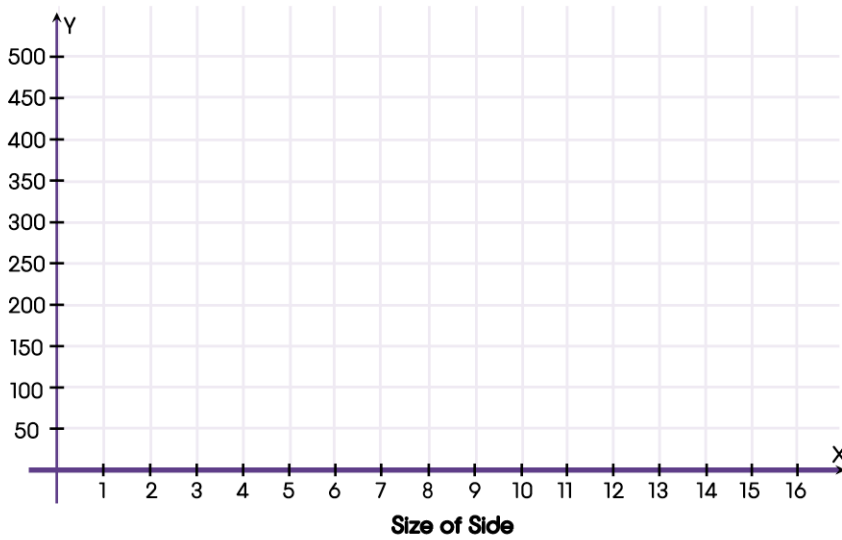
In the last column divide the volume of the cube you are considering by the volume of the previous cube. Note and discuss your findings.



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Advanced

3) On the graph below plot both sets of results, i.e. area against length and volume against length. Note and discuss your findings.





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ANSWERS

Basic

- 1) a) 10 b) 56 c) 125 d) 145 e) 72 f) 44
- 2) a) 27 b) 64 c) 125 d) 512 e) 217 f) 35
- 3) a) 9m^2 b) 32m^2 c) 45m^2
- 4) a) 27m^2 b) 96m^2

5)

Square	Size of sides	Area	Area ÷ previous area
a	1	1	-----
b	2	4	4
c	4	16	4
d	8	64	4
e	16	256	4

Core

- 1) a) 10 b) 56 c) 125 d) 145 e) 72 f) 44
- 2) a) 27 b) 64 c) 125 d) 512 e) 217 f) 35

3)

Square	Size of sides	Area	Area ÷ previous area
a	1	1	-----
b	2	4	4
c	4	16	4
d	8	64	4
e	16	256	4

4)

Cube	Size of sides	Volume	Volume ÷ previous volume
a	1	1	-----
b	2	8	8
c	4	64	8
d	8	512	8
e	16	4096	8



The Incredible Strength of Ants

ANSWERS

Advanced

1)

Square	Size of sides	Area	Area ÷ previous area
a	1	1	-----
b	2	4	4
c	4	16	4
d	8	64	4
e	16	256	4

2)

Cube	Size of sides	Volume	Volume ÷ previous volume
a	1	1	-----
b	2	8	8
c	4	64	8
d	8	512	8

