



Aiming for the Outer Planets

NAME:

CLASS:

DATE:



Basic

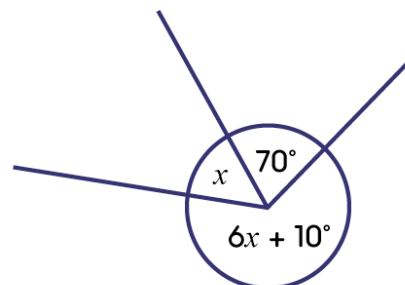
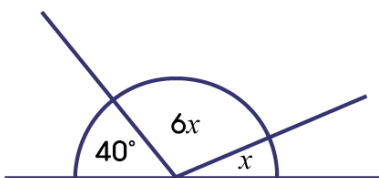
1) For each question, form an equation using the numbers given and find x .

a) Multiply x by 3 then add 7. The answer is 19. What is x ?

b) Multiply x by 2 then subtract 10. The answer is 12. What is x ?

c) Add 5 to x then multiply that by 3. The answer is 21. What is x ?

2) For each of the diagrams below, form an equation and find x .





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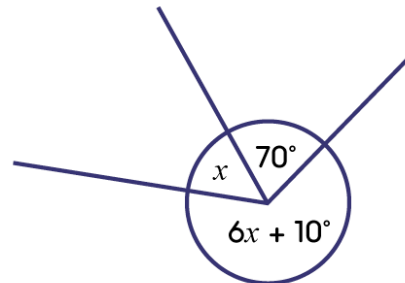
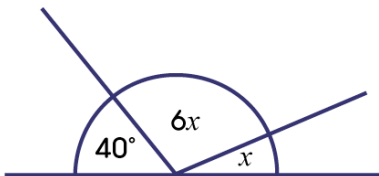
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Core

1) For each of the diagrams below, form an equation and find x .



2) The formula $C = \frac{5}{9}(F - 32)$ is used to convert temperature in degrees Fahrenheit to degrees Celsius.

a) If $F = 50$, calculate C

b) If $F = 140$, calculate C

c) If $C = 25$, calculate F

3) The cost (C) of building a brick wall is directly proportional to the length of the wall (L). A wall costs £12,000 and is 20m in length.

a) Find the relationship between C and L .

b) Find the cost of a wall that is 27m long.

c) A wall costs £9000. How long is the wall?



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Core

4) A spring stretches when a force is applied to one end of it. The extension, X , of the spring is directly proportional to the amount of force applied, F . When the applied force is 30 Newtons (N) the extension is 9cm.

- a) Find the relationship between X and F .
- b) What extension would be produced by a force of 20 Newtons?
- c) What force is required to produce an extension of 12cm?

5) Complete the table below if $y \propto \frac{1}{x}$.

x	2	5	10		
y		20		25	12.5

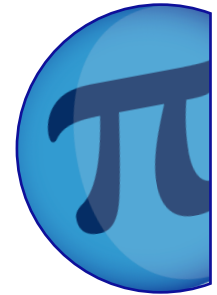


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Advanced

- 1) The formula $C = \frac{5}{9}(F - 32)$ is used to convert temperature in degrees Fahrenheit to degrees Celsius.
- a) If $F = 50$, calculate C b) If $F = 140$, calculate C c) If $C = 25$, calculate F

2) A spring stretches when a force is applied to one end of it. The extension, X , of the spring is directly proportional to the amount of force applied, F . When the applied force is 30 Newtons (N) the extension is 9cm.

- a) Find the relationship between X and F .
- b) What extension would be produced by a force of 20 Newtons?
- c) What force is required to produce an extension of 12cm?

3) Complete the table below if $y \propto \frac{1}{x}$.

x	2	5	10		
y		20		25	12.5

4) The wavelength of sound waves is inversely proportional to their frequency. When the wavelength is 22cm the frequency is 1550Hz.

- a) Find the wavelength when the frequency is 1000Hz.
- b) Find the frequency that would result in a wavelength of 25cm.



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ANSWERS

Basic

- 1) a) $x = 4$ b) $x = 11$ c) $x = 2$
- 2) a) $x = 20^\circ$ b) $x = 40^\circ$
- 3) a) £37.50 b) £450m c) £228.75
- 4) a) £3.25 b) £13 c) £26
- 5) a) 25 minutes b) 100 minutes c) 60 minutes
- 6) 6.5 hours
- 7) 2.4cm
- 8) 1 day

Core

- 1) a) $x = 20^\circ$ b) $x = 40^\circ$
- 2) a) 10 b) 60 c) 77
- 3) a) C = 600L b) £16,200 c) 15m
- 4) a) X = 0.3N b) 6cm c) 40 Newtons

5)

x	2	5	10	4	8
y	50	20	10	25	12.5

Advanced

- 1) a) 10 b) 60 c) 77
- 2) a) X = 0.3N b) 6cm c) 40 Newtons

3)

x	2	5	10	4	8
y	50	20	10	25	12.5

- 4) a) 34.1cm b) 1364Hz