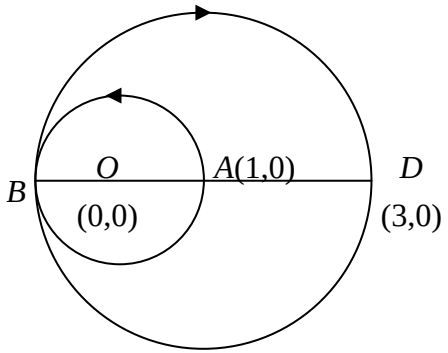
1983 FI3.4

如圖，一兔子花了 30 分鐘經半圓跑道由 A 去到 B。以相同速度，牠花了 d 分鐘經半圓跑道由 $A \to B \to D$。問 d 為何？

As shown a rabbit spends 30 minutes in travelling from A to B along half circle. With the same speed, it spends d minutes in travelling from $A \to B \to D$ along half circles. What is the value of d?



1984 FG6.2

若 p 人可在 6 日完成某一工程，且 4 人可在 q 日完成同一工程，求 q 的值。

If 10 men can do a job in 6 days and 4 men can do the same job in q days, find the value of q.

1985 FG6.2

一行車速率為 60 km/h 的貨車之一輪每秒轉動 4 周，若其直徑為 $\frac{y}{6\pi}$ m，求 y 的值。

A wheel of a truck travelling at 60 km/h makes 4 revolutions per second. If its diameter is $\frac{y}{6\pi}$ m, find the value of y.

1985 FG7.3

一人以 4 km/h 之速率步行 10 km，再以 6 km/h 之速率步行另 10 km。若全程之平均速率為 x km/h，求 x 的值。

A man travels 10 km at a speed of 4 km/h and another 10 km at a speed of 6 km/h. If the average speed of the whole journey is x km/h, find the value of x.

1986 FI4.4

某小童以速率 4 km/h 由家步行上學，並依照原來路線以速率 3 km/h 步行回家。若來回兩程之平均速率為 $\frac{24}{q}$ km/h，求 q 的值。

A boy walks from home to school at a speed of 4 km/h and returns home along the same route at a speed of 3 km/h. If the average speed for the double journey is $\frac{24}{q}$ km/h, find the value of q.

1986 FI5.3

A，B 兩城相距 48 km。彼得從 A 城以速率 7 km/h 踏單車往 B 城，與此同時，約翰從 B 城以速率 5 km/h 踏單車往 A 城。

若兩人於 p 小時後相遇，求 p 的值。

A, B are two towns 48 km apart. Peter cycles at a speed of 7 km/h from A to B and at the same time John cycles from B to A at a speed of 5 km/h.

If they meet after p hours, find the value of p.

1987 FI3.3

某人以均勻速度 6 km/h 由 X 往 Y，並以均勻速度 12 km/h 由 Y 返 X。

若其平均速度為 c km/h，求 c 的值。

A man travels from X to Y at a uniform speed of 6 km/h and returns at a uniform speed of 12 km/h. If his average speed is c km/h, find the value of c.

1988 FI3.3

甲可在 6 日完成某一工程，乙可在 12 日完成同一工程。

假如甲、乙合作，可在 m 日完成該工程。求 m 的值。

A can do a job in 6 days, B can do the same job in 12 days.

If they work together, they can finish the job in m days. Find the value of m.

1989 HI5

某人以 15 km/h 速率乘單車由 P 至 Q，然後以 10 km/h 速率由 Q 返回 P。求該人來回全程的平均速率。

A man cycles from P to Q with a uniform speed of 15 km/h and then back from Q to P with a uniform speed of 10 km/h. Find the average speed for the whole journey.

1989 FG6.3

某人以 25 km/h 的速率行車 3 小時，再以 50 km/h 的速率行車 2 小時。

若全程的平均速率是 u km/h，求 u 的值。

A man drives at 25 km/h for 3 hours and then at 50 km/h for 2 hours.

His average speed for the whole journey is u km/h. Find the value of u.

1990 HI15

若 10 人需要 5 天製成 20 張檯，請問 15 人需要多少天製成 60 張檯?

If 10 men can make 20 tables in 5 days,

how many days are required to make 60 tables by 15 men?

1990 FI1.4

某人以 30 km/h 的速率行車 3 小時，再以 40 km/h 的速率行車 2 小時。

若全程的平均速率是 d km/h，求 d 的值。

A man drives a car at 30 km/h for 3 hours and then 40 km/h for 2 hours. If his average speed for the whole journey is d km/h, find the value of d.

1991 HI5

某童以每秒 2 米的速度由家步行回校，又以每秒 x 米的速度跑回家。若該童的往返平均速度為每秒 $2\frac{2}{3}$ 米，求 x 的值。

A boy walks from home to school at a speed of 2 metres per second and runs back at x metres per second. His average speed for the whole journey is $2\frac{2}{3}$ metres per second. Find the value of x.

1991 FG7.1

5 部印刷機可在 5 天內印 5 本書。若要在 100 天內印 100 本書，則需要 n 部印刷機，求 n 的值。

5 printing machines can print 5 books in 5 days. If n printing machines are required in order to have 100 books printed in 100 days, find the value of n.

1993 HG1

一汽車 P 位於另一汽車 Q 以北 $10\sqrt{2}$ km。兩車同時起步，其中 P 以 4 km/h 速度向東南方走，而 Q 則以 3 km/h 速度向東北方走。求兩車最接近時的距離並以 km 表示。

A car P is $10\sqrt{2}$ km north of another car Q. The two cars start to move at the same time with P moving south-east at 4 km/h and Q moving north-east at 3 km/h. Find their smallest distance of separation in km.

1993 FI3.3

兩人踏單車，起始時相距 50 km，以時速 40 km/h 及 60 km/h 相向而行。一蒼蠅以時速 100 km/h 往返兩人鼻尖，

若牠在兩人碰上前共飛 c km，求 c 的值。

Two cyclists, initially 50 km apart travelling towards each other with speeds 40 km/h and 60 km/h respectively. A fly flies back and forth between their noses at 100 km/h.

If the fly flied c km before crushed between the cyclists, find the value of c.

1994 HG3

在一場 2000 米競賽中，A 完成全程時，分別領先 B、C 200 米及 290 米。若 B 及 C 各自以原有的平均速度繼續競賽，則 B 在抵達終點時，領先 C x 米，求 x 的值。

In a race of 2000 m, A finishes 200 m ahead of B and 290 m ahead of C. If B and C continue to run at their previous average speeds, then B will finish x metres ahead of C. Find the value of x.

1995 FI2.3

甲可在 3 日完成某一項工程，乙可在 6 日完成同一工程。假如甲乙二人合作，可在 z 日完成，求 z 的值。

A can finish a job in 3 days, B can finish a job in 6 days. If they worked together, they can finish the job in z days, find the value of z.

1995 FI3.4

一輛汽車以平均時速 80 km/h 完成了旅程的 40 %。為著使全程的平均速度為 100 km/h，車速被調至 d km/h 行畢全程。求 d 的值。

A car has already travelled 40% of its journey at an average speed of 80 km/h. In order to make the average speed of the whole journey become 100 km/h, the speed of the car is adjusted to d km/h to complete the rest of the journey.
Find the value of d.

1997 HG5

水管 A 能於 20 小時內獨自盛滿某一水池，而水管 B 則於 5 小時內完成此工作。若兩水管同時使用時盛滿這水池所需的時間則為 x 小時，
求 x 的值。

Pipe A alone takes 20 hours to fill a tank and pipe B takes 5 hours to fill the same tank alone.
If pipes A and B together take x hours to fill the tank, find the value of x.

2001 HI8

甲、乙二人合作做一件工程，30 天便可完工。如果兩人只合作了 6 天，甲便退出，乙須獨自繼續做 40 天才能完工。

如果甲每天完成工程的 $\frac{1}{q}$，求 q 的值。

Two persons A, B can complete a task in 30 days when they work together. If they work together for 6 days and then A quits, B needs 40 days more in order to complete the task.

If the proportion of the task A can finish each day is $\frac{1}{q}$, find the value of q.

2001 HG1

現在鐘面上的時間是一時正。p 分鐘後，分針與時針剛好重疊，
求 p 的最小值。

The time on the clock face is now one o'clock. After p minutes, the minute hand overlaps with the hour hand, find the minimum value of p.

2001 FG4.3

甲乙兩人在一圓形跑道上同時同地相背以均速開跑。他們第一次相遇後，乙再跑 1 分鐘到達原起步點。已知甲和乙分別需要 6 分鐘和 c 分鐘繞跑道一周，求 c 的值。

A and *B* ran around a circular path with constant speeds. They started from the same place and at the same time in opposite directions. After their first meeting, *B* took 1 minute to go back to the starting place. If *A* and *B* need 6 minutes and *c* minutes respectively to complete one round of the path, find the value of c .

2002 FI1.2

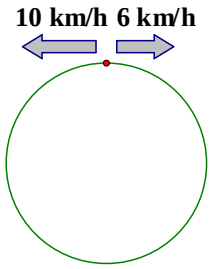
一件工程，甲單獨需時 90 天完成，而乙則需時 Q 天。

若甲、乙二人合做只需 40 天完成，求 Q 的值。

Workman A needs 90 days to finish a task independently while workman B needs *Q* days for the same task. If they only need 40 days to finish the task when working together, find the value of *Q*.

2017 FI2.1

兩個學生於長 1-km 的圓形跑道的起點開始分別以10 km/h 及 6 km/h 的速率跑沿相反方向跑步。當他們於起點再相遇時便停止跑步。若 a 為他們開始及停止前相互經過的次數，求 a 的值。



Two students run in opposite directions from a starting point of a 1-km circular track at speeds of 10 km/h and 6 km/h, respectively. They stop running when they meet each other at the starting point again.

If *a* is number of times they cross each other after they start and before they stop, determine the value of *a*.

2017 FI2.4

於一個月的時間完成建築一個水庫需要 d 個技工或 y 個勞工，當中 $d + y =$ 15936。若挑選 d 個勞工去建築一個同樣的水庫，所需要的時間是挑選 y 個技工的 4 倍，求 d 的值。

The building of a reservoir takes *d* technicians, or alternatively *y* labours to complete in a month, where $d + y =$ 15936. If *d* labours are employed to build the same reservoir, the time taken is 4 times as much as the time taken when *y* technicians are employed. Determine the value of *d*.

2017 FG4.1

製作某玩具，需要先倒模，後上色。甲先生每日可以為 3 件玩具倒模，或為 15 件玩具上色；乙先生每日則可以為 5 件玩具倒模，或為 15 件玩具上色。各人每日只能倒模或上色，而不能同做兩事。

若甲先生和乙先生合作，求最小多少日 P 才可以製作 120 件玩具。

To make a specific toy, it must be first moulded and then painted. Mr. A can mould 3 pieces of toys or paint 15 pieces of toys in one day, whereas Mr. B can mould 5 pieces or paint 15 pieces of toys in one day. Each of them can either mould or paint toys in one day, but not both. If Mr. A and Mr. B work together, determine the least number of days *P* to make 120 toys.

Answers

1983 FI3.4 30	1984 FG6.2 15	1985 FG6.2 25	1985 FG7.3 $\frac{24}{5}$	1986 FI4.4 7
1986 FI5.3 4	1987 FI3.3 8	1988 FI3.3 4	1989 HI5 12 km/h	1990 HI15 10
1990 FI1.4 34	1991 HI5 4	1991 FG7.1 5	1993 HG1 2 km	1993 FI3.3 50
1994 HG3 100	1995 FI2.4 2	1995 FI3.4 120	1997 HG6 4	2001 HI8 75
2001 HG1 $\frac{60}{11}$	2001 FG4.3 3	2002 FI1.2 72	2017 FI2.1 8	2017 FI2.4 5312
2017 FG4.4 18				