

Levers & Pulleys **ANSWERS**

Bands 1, 2, 3, 4, 5 · 10 questions · Free sample

Each picture asks its own question. A beam balances when weight times distance is the same on both sides of the pivot. A pulley system holds its load with the load divided by the rope segments holding the moving block.

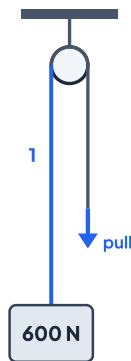
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1

Band 1

Answer: B

What force holds the 600 N load?



1 rope segments hold the load: $600 \text{ N} \div 1 = 600 \text{ N}$

A 300 N

One rope segment too many counted (the pulled end, pulling down)

B 600 N

The answer

C 1200 N

Multiplied instead of divided

D 1800 N

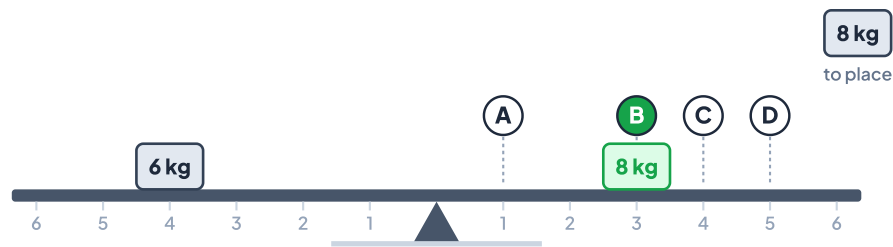
Not what the rope segments give

2

Band 1

Answer: B

Where must the 8 kg weight go to balance the beam?



Left: $6 \times 4 = 24$ Right: $8 \times 3 = 24$

A

A

Does not balance

B

B

The answer

C

C

The mirror place of the weight opposite: right only for equal weights

D

D

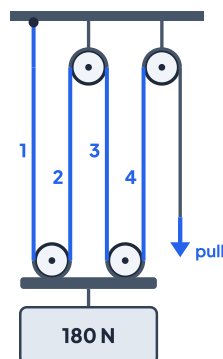
Does not balance

3

Band 2

Answer: A

Pull the rope 36 m. How far does the load rise?



4 rope segments hold the load: $36 \text{ m} \div 4 = 9 \text{ m}$

A

9 m

The answer

B

12 m

One rope segment too few counted

C

36 m

As if the pulleys gave no advantage

D

144 m

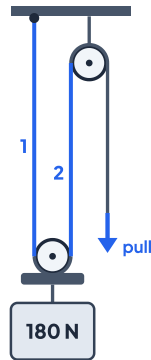
Multiplied instead of divided

4

Band 2

Answer: A

Pull the rope 10 m. How far does the load rise?



2 rope segments hold the load: $10 \text{ m} \div 2 = 5 \text{ m}$

A

5 m

The answer

B

10 m

As if the pulleys gave no advantage

C

15 m

Not what the rope segments give

D

20 m

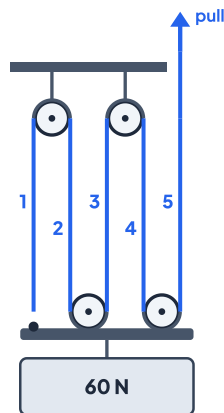
Multiplied instead of divided

5

Band 3

Answer: A

What force holds the 60 N load?



5 rope segments hold the load: $60 \text{ N} \div 5 = 12 \text{ N}$

A

12 N

The answer

B

15 N

One rope segment too few counted

C

30 N

As if any pulley halved the load

D

60 N

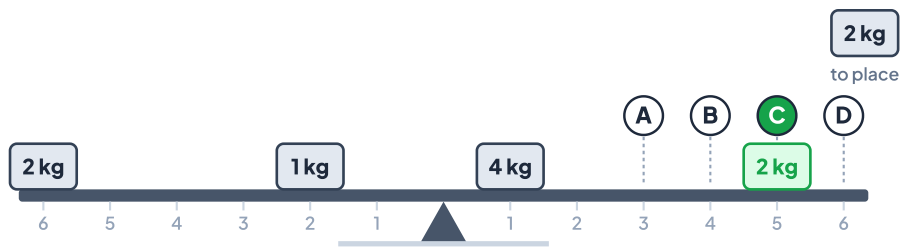
As if the pulleys gave no advantage

6

Band 3

Answer: C

Where must the 2 kg weight go to balance the beam?



$$\text{Left: } 2 \times 6 + 1 \times 2 = 14 \quad \text{Right: } 4 \times 1 + 2 \times 5 = 14$$

A

A

Does not balance

B

B

Does not balance

C

C

The answer

D

D

The mirror place of the weight opposite: right only for equal weights

7

Band 4

Answer: C

Which weight balances the mobile?



$$\text{Left: } 3 \times 6 = 18 \quad \text{Right: } 9 \times 2 = 18$$

A

3 kg

Weights compared without their distances

B

6 kg

Only one side of the hanging beam counted

C

9 kg

The answer

D

18 kg

The turning effect, not divided by the distance

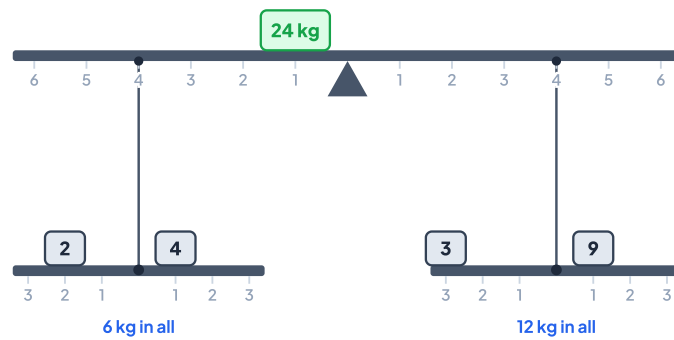
8

Band 4

Answer: B

Which weight balances the mobile?

(beams weigh nothing; numbers in kg)

Left: $6 \times 4 + 24 \times 1 = 48$ Right: $12 \times 4 = 48$

A

12 kg

Only one side of the hanging beam counted

B

24 kg

The answer

C

32 kg

Only one side of the hanging beam counted

D

48 kg

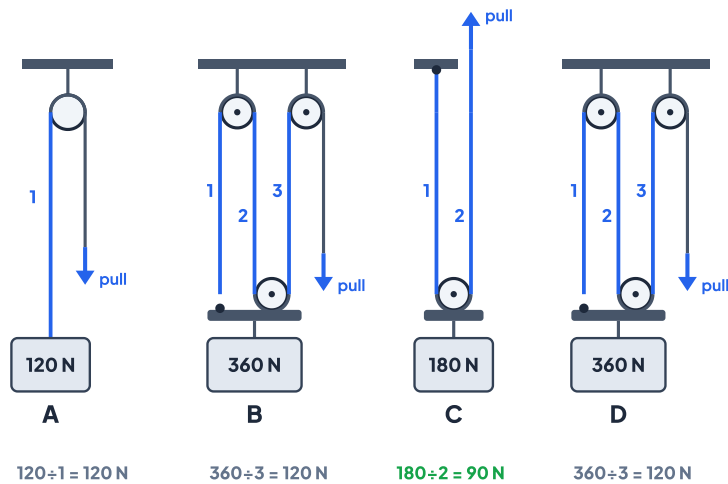
The hanging beam left out

9

Band 5

Answer: C

Which load needs the least force to hold?



A

A

The lightest load, but fewer rope segments

B

B

The most rope segments, but a heavier load

C

C

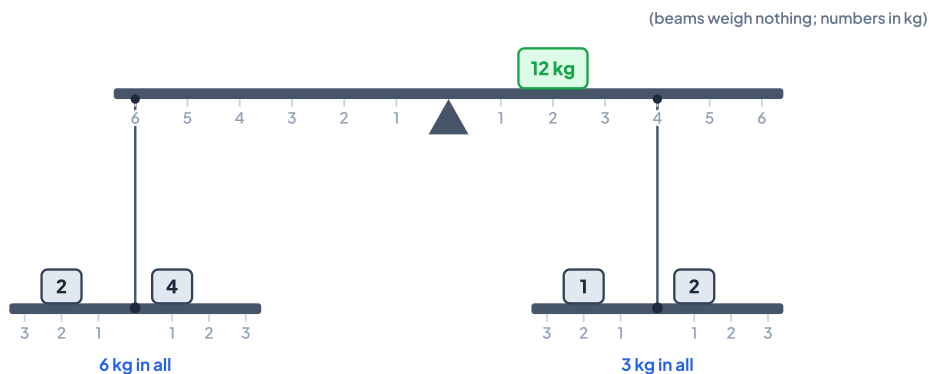
The answer

D

D

Needs more force

Which weight balances the mobile?



Left: $6 \times 6 = 36$ Right: $3 \times 4 + 12 \times 2 = 36$

A

6 kg

Only one side of the
hanging beam
counted

B

12 kg

The answer

C

14 kg

Only one side of the
hanging beam
counted

D

18 kg

The hanging beam
left out

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