

GEARS

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On behalf of The World Association of Technology Teachers

W.A.T.T.



World Association of Technology Teachers

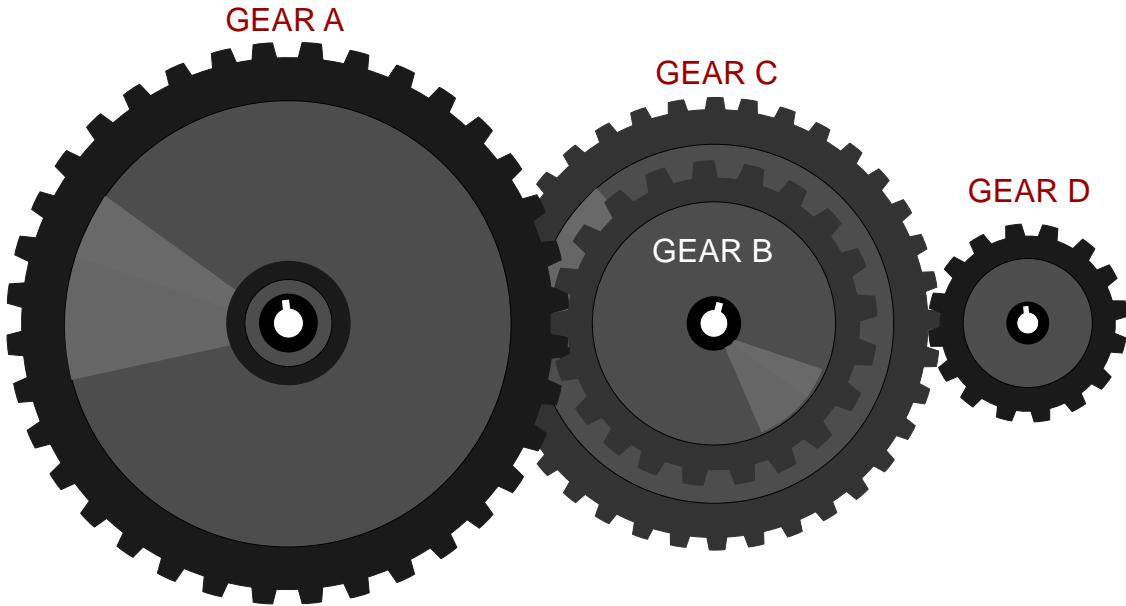
This 'Exercise' can be printed and used by teachers and students. It is recommended that you view (www.technologystudent.com) before attempting the worksheet .

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GEARS - EXAMINATION QUESTIONS

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Below is a question regarding 'compound gears'. Gears C and B represent a compound gear as they appear 'fixed' together. When drawn with a compass they have the same centre. Two gears 'fixed' together in this way rotate together and at the same RPM. When answering a question like this split it into two parts. Treat gears A and B as one question AND C and D as the second part.



This is an example of a “compound gear train”. Gear A rotates in a clockwise direction at 30 revs/min. What is the output in revs/min at D and what is the direction of rotation ?

GEAR A	GEAR B	GEAR C	GEAR D
120 teeth	40 teeth	80 teeth	20 teeth

First find revs/min at Gear B.

$$\frac{\text{teeth B}}{\text{teeth A}} =$$

$$\text{__ rpm} \times \text{__} = \text{__ rpm / min}$$

B is smaller therefore it rotates faster and revs/min increase.

C is fixed to B and therefore, rotates at the same speed.

__ REVS/MIN at C

Next find revs/min at Gear D.

$$\frac{\text{teeth C}}{\text{teeth D}} =$$

$$\text{__ rpm (at C)} \times \text{__} = \text{__ rpm / min}$$

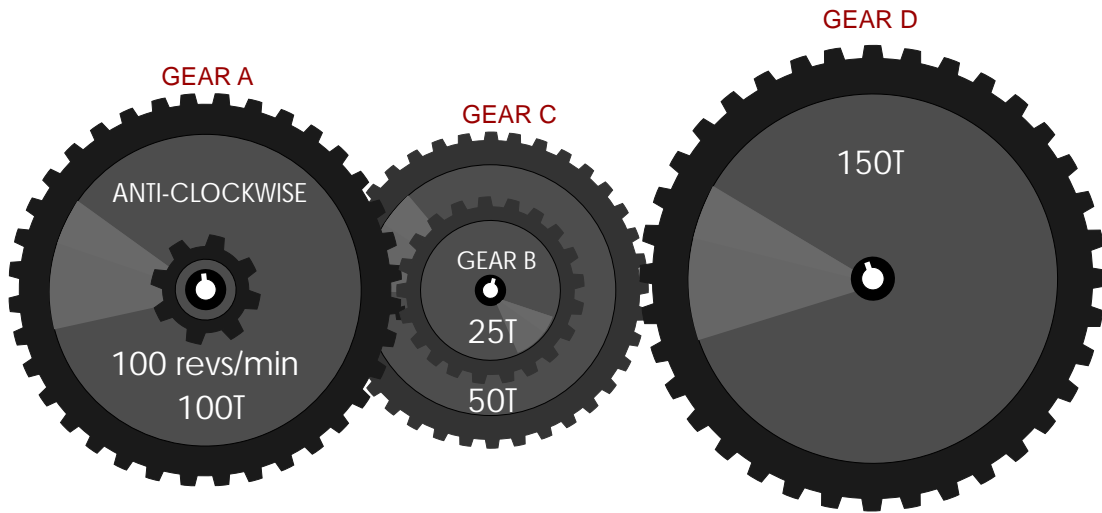
D is smaller than C, therefore rotates faster (increased revs/min).

A revolves in a clockwise direction, B is therefore anti-clockwise, C is fixed to B and is also anti-clockwise, which means D revolves in a _____ direction.

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Try the following question:



What is the revs/min at gear D and what is its direction?