

SPUR GEARS AND GEAR TRAINS

TO ANSWER ALL THE QUESTIONS YOU WILL NEED TO DOWNLOAD THE 'GEARS AND PULLEY SYSTEMS' APP, FROM THE INTERACTIVE MOBILE APP SECTION OF www.technologystudent.com

LINK

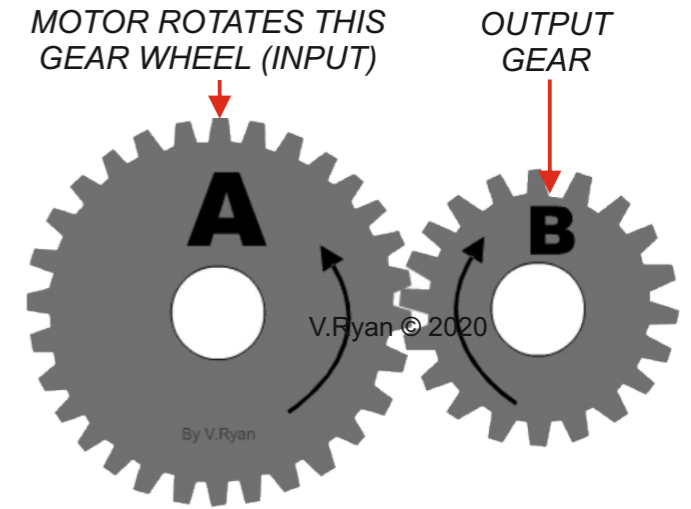
http://www.technologystudent.com/mobapps/gears_and_pulleys1.pdf

Once you have downloaded the App, you can use it to navigate the website. You may need to follow the links on each page of the App, to research / complete answers to all the questions.

**ARE YOU READY?
USE THE MOBILE App!!**

1 WHERE CAN GEARS AND GEAR SYSTEMS BE FOUND? Give a few examples

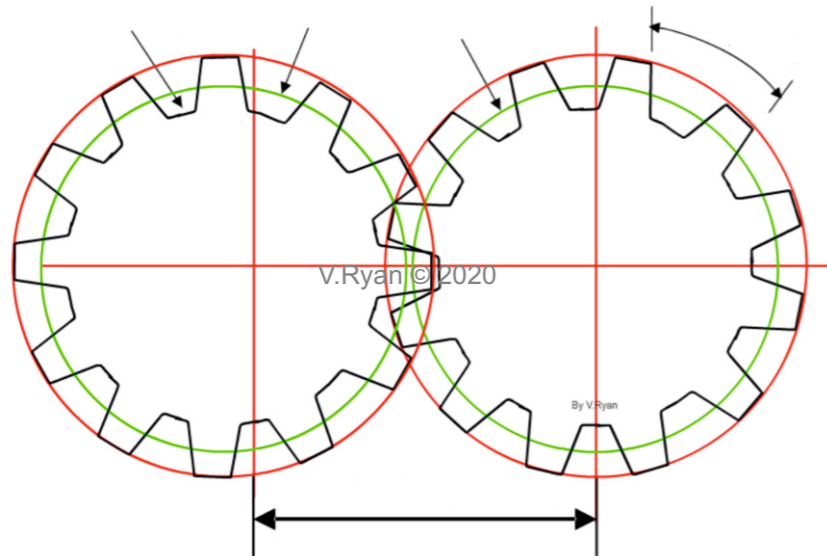
2 WHICH OF THE GEAR WHEELS IS THE DRIVER AND WHICH IS THE DRIVEN?
MOTOR ROTATES THIS GEAR WHEEL (INPUT) OUTPUT GEAR



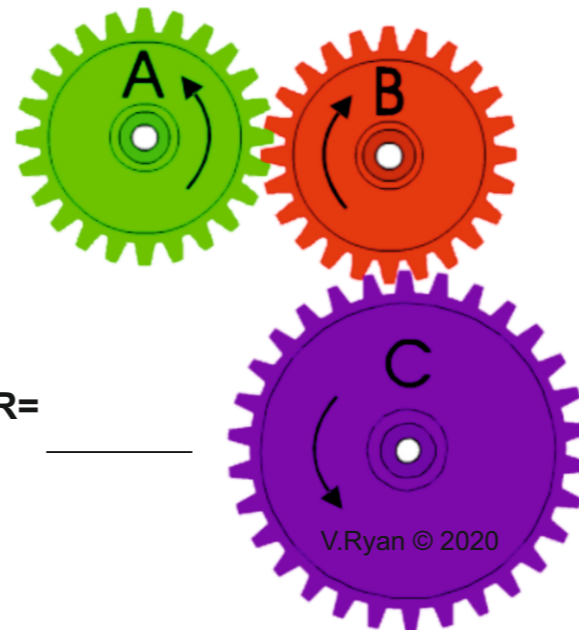
A: _____

B: _____

3 TO IDENTIFY THE ROOT, PITCH CIRCLE, PITCH, CENTRE DISTANCE, USING THE DIAGRAM OF SPUR GEARS BELOW.

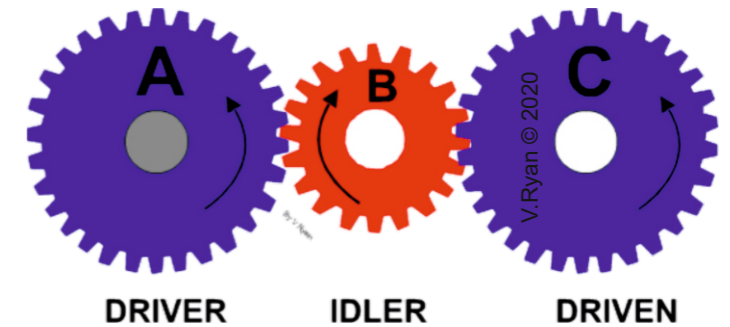


4 IDENTIFY THE 'IDLER' GEAR IN THIS GEAR TRAIN.

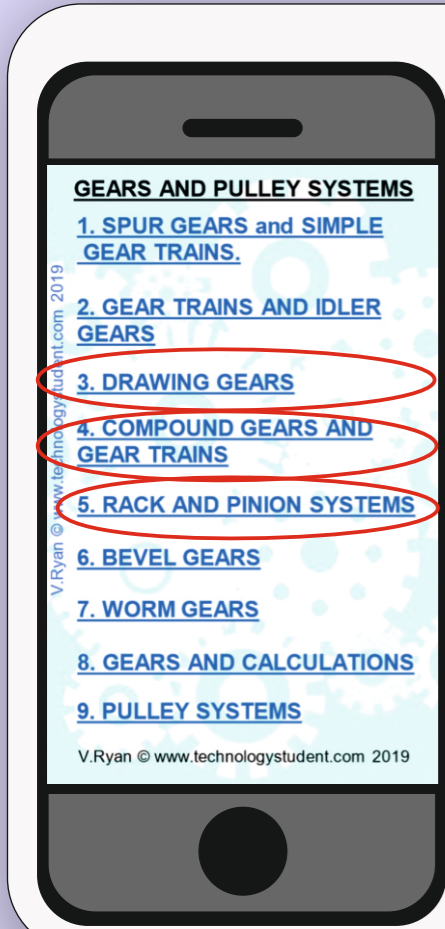


IDLER GEAR= _____

5 WHAT IS THE PURPOSE OF THE IDLER GEAR, IN THIS GEAR TRAIN?



HELPFUL LINK: http://www.technologystudent.com/mobapps/gears_and_pulleys1.pdf



DRAWING GEARS, COMPOUND GEARS AND RACK AND PINIONS

TO ANSWER ALL THE QUESTIONS YOU WILL NEED TO DOWNLOAD THE 'GEARS AND PULLEY SYSTEMS' APP, FROM THE INTERACTIVE MOBILE APP SECTION OF www.technologystudent.com

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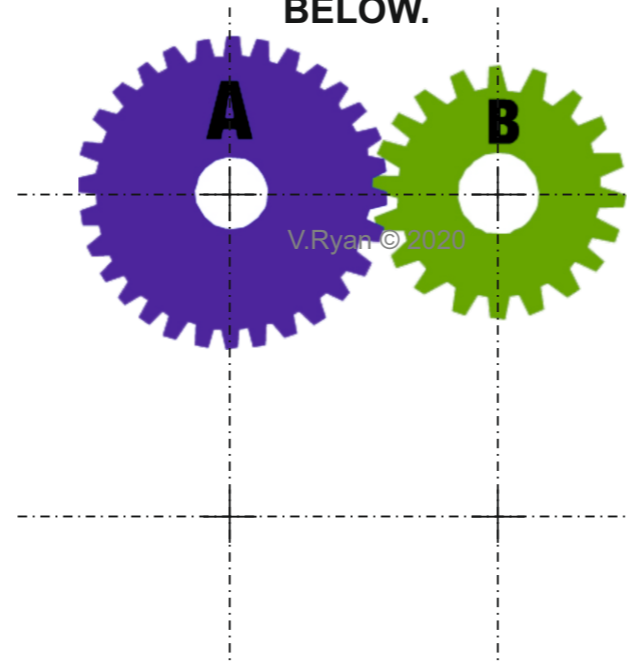
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1

GEARS CAN BE DRAWN AS SIMPLE DIAGRAMS. DRAW THE CORRECT SIMPLE VERSION OF THESE GEARS, IN THE SPACE BELOW.

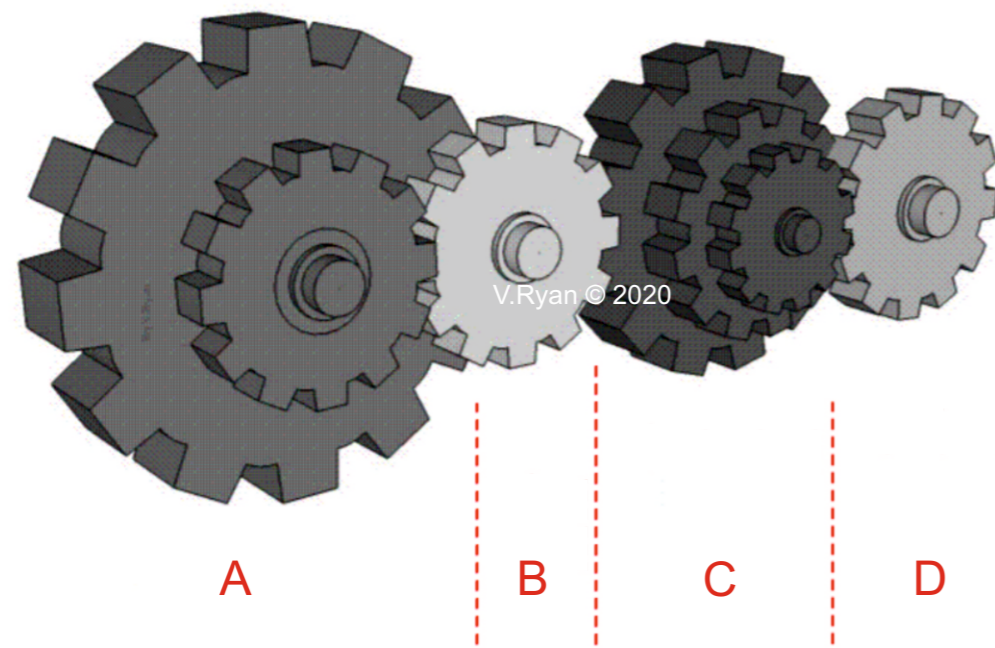


2

WHAT IS A COMPOUND GEAR? WHAT IS THE PURPOSE OF THIS TYPE OF GEAR?

3

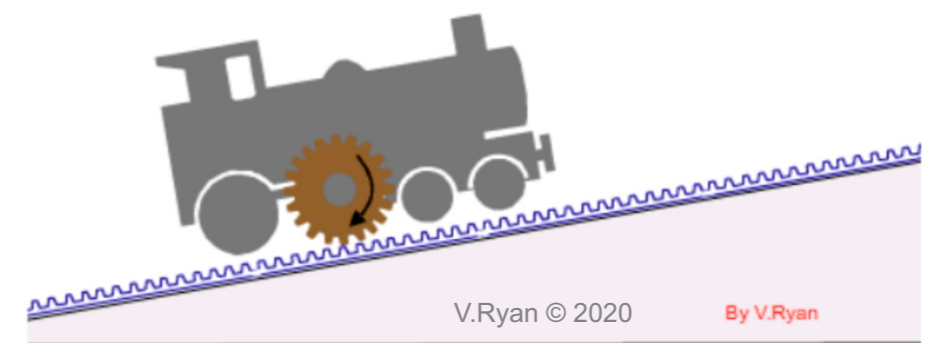
A GEAR TRAIN IS SEEN BELOW. IDENTIFY THE FOLLOWING: THE OUTPUT GEAR, THE IDLER AND ANY COMPOUND GEARS.



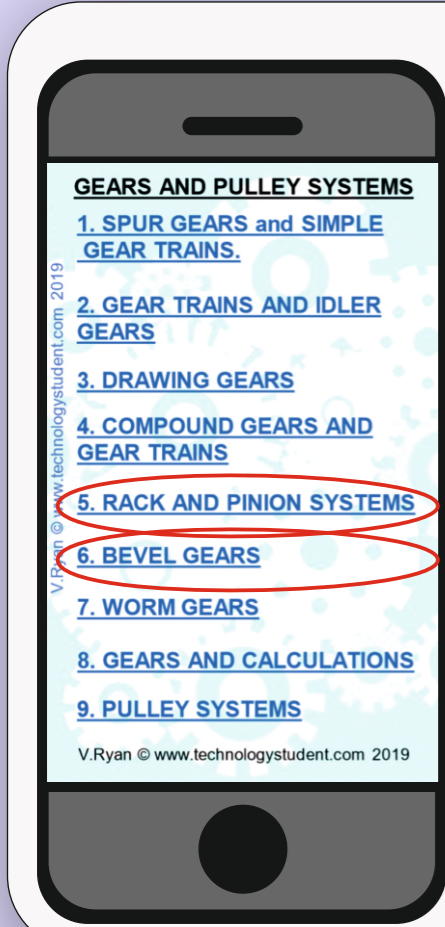
- A: _____
- B: _____
- C: _____
- D: _____

4

THIS IS A RACK AND PINION GEAR SYSTEM. IDENTIFY THE RACK AND PINION, WITH LABELS AND ARROWS.



HELPFUL LINK: http://www.technologystudent.com/mobapps/gears_and_pulleys1.pdf



RACK AND PINION AND BEVEL GEARS

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**ARE YOU READY?
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1

WHY IS A RACK AND PINION SYSTEM USEFUL FOR MOUNTAIN TRAINS?

2

PASTE AN IMAGE OF A RACK AND PINION SYSTEM, AS USED BY MOUNTAIN TRAINS.

Your image should clearly show the rack and pinion gears.

3

SOME WORKSHOP EQUIPMENT, INCLUDE A RACK AND PINION. SKETCH A PIECE OF EQUIPMENT, WITH A RACK AND PINION. EXPLAIN WHY THE RACK AND PINION SYSTEM, IS IMPORTANT FOR YOUR SELECTED PIECE OF EQUIPMENT.

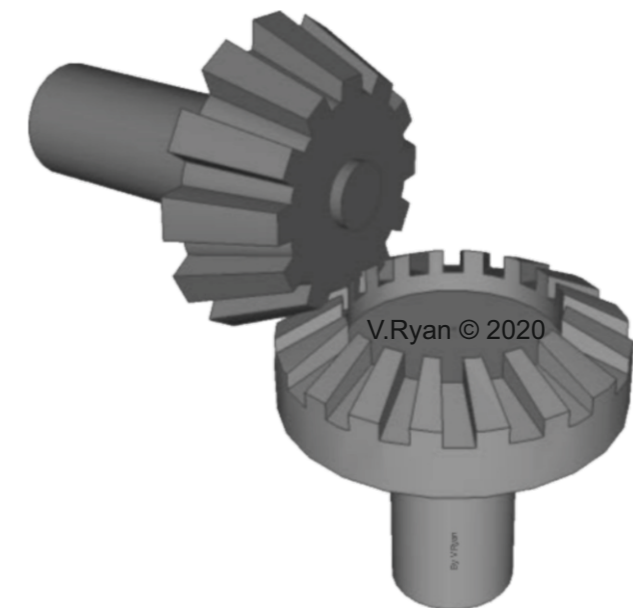
SKETCH

NOTES

4

NAME THE GEAR SYSTEM SHOWN BELOW.

NAME: _____



HELPFUL LINK: http://www.technologystudent.com/mobapps/gears_and_pulleys1.pdf

GEARS AND PULLEY SYSTEMS

1. SPUR GEARS and SIMPLE GEAR TRAINS.
2. GEAR TRAINS AND IDLER GEARS
3. DRAWING GEARS
4. COMPOUND GEARS AND GEAR TRAINS
5. RACK AND PINION SYSTEMS
6. BEVEL GEARS
7. WORM GEARS
8. GEARS AND CALCULATIONS
9. PULLEY SYSTEMS

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BEVEL GEARS, WORM GEARS, CALCULATIONS.

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**ARE YOU READY?
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1

WHAT IS THE PURPOSE / FUNCTION OF BEVEL GEARS. INCLUDE A PRACTICAL APPLICATION.

Support your answer with a sketch in the next box.



YOUR SKETCH OF A PRACTICAL APPLICATION

You can paste an image from the internet, if you prefer.

2

IDENTIFY THE PARTS OF THE WORM GEAR SYSTEM, INDICATED BY THE ARROWS . DESCRIBE ONE PRACTICAL APPLICATION OF A WORM GEAR

SKETCH

MOTOR

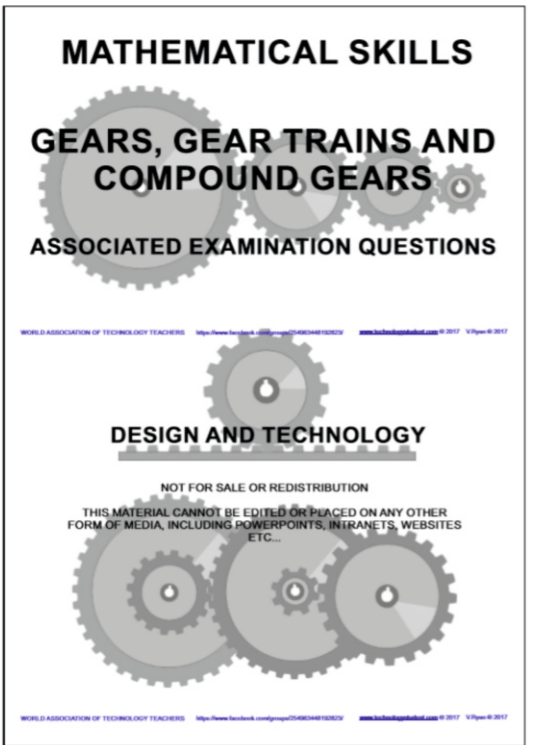
DESCRIPTION OF APPLICATION

3

CALCULATIONS AND FORULAS FOR GEAR SYSTEMS

FOR GEAR CALCULATIONS, WORKED EXAMPLES AND QUESTIONS - DOWNLOAD THE BOOKLET SEEN OPPOSITE, FROM THE "MATHEMATICS IN DESIGN AND TECHNOLOGY" SECTION OF www.technologystudent.com

OR GO TO THE 'GEARS AND PULLEYS' SECTION OF THE WEBSITE



HELPFUL LINK: http://www.technologystudent.com/mobapps/gears_and_pulleys1.pdf

INTRODUCTION TO PULLEY SYSTEMS

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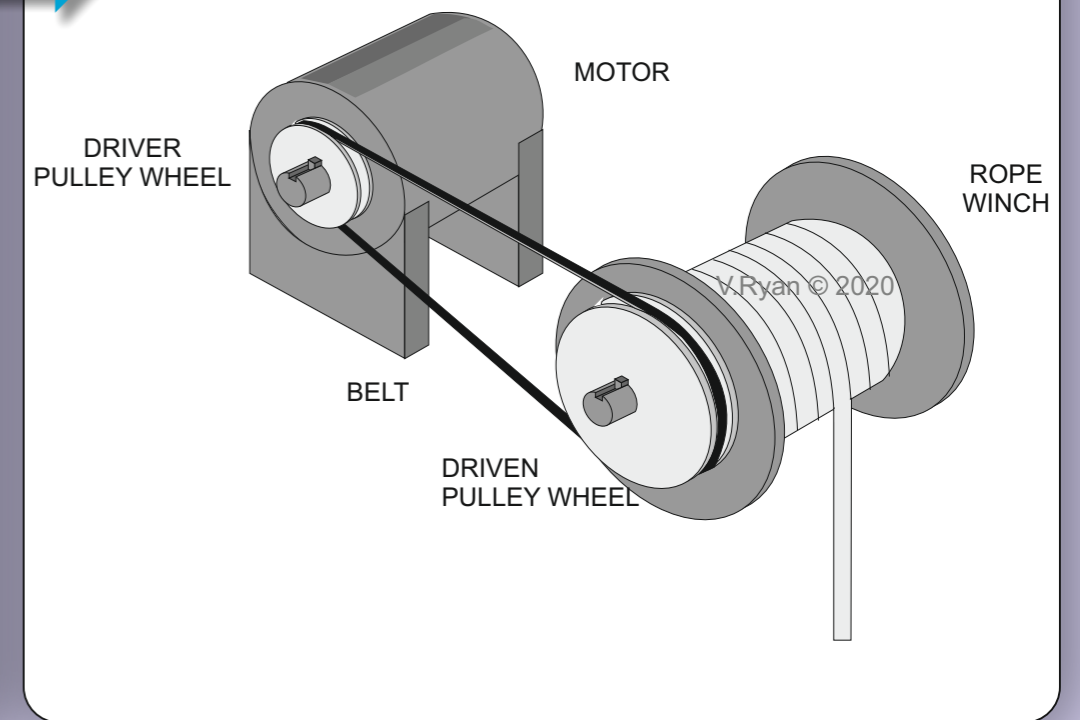
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1

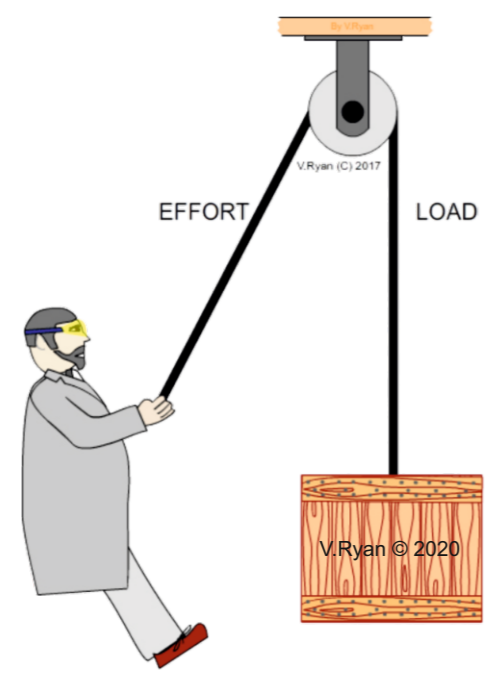
WHAT IS THE PURPOSE OF A PULLEY SYSTEM.

Make reference to the system shown opposite.



2

WITH REFERENCE TO THIS DIAGRAM, WHAT IS THE 'EFFORT' AND WHAT IS THE 'LOAD'?



3

CALCULATIONS AND FORULAS PULLEY SYSTEMS AND FURTHER DETAIL ON PULLEY SYSTEMS

FOR CALCULATIONS, WORKED EXAMPLES AND QUESTIONS -

GO TO THE 'GEARS AND PULLEYS SECTION OF www.technologystudent.com

GEARS AND PULLEYS
V. Ryan © 2001-2017
The section is aimed at introducing pupils to basic concepts of gears and pulleys. Areas covered include spur gears, compound gears, chain drive, rack / pinion systems and pulley systems. Click on the aspect of gears/pulleys outlined below to view the information sheets.
SHORT VIDEO - INTRODUCTION TO GEARS
WHAT ARE GEARS?
www.technologystudent.com
SPUR GEARS
COMPOUND GEARS
BEVEL GEARS
GEAR TRAINS
RACK AND PINION
WORM AND WORM WHEELS

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