



Industrial Technology Virtual Learning

CTE

May 5th, 2020



Machine Technology 1

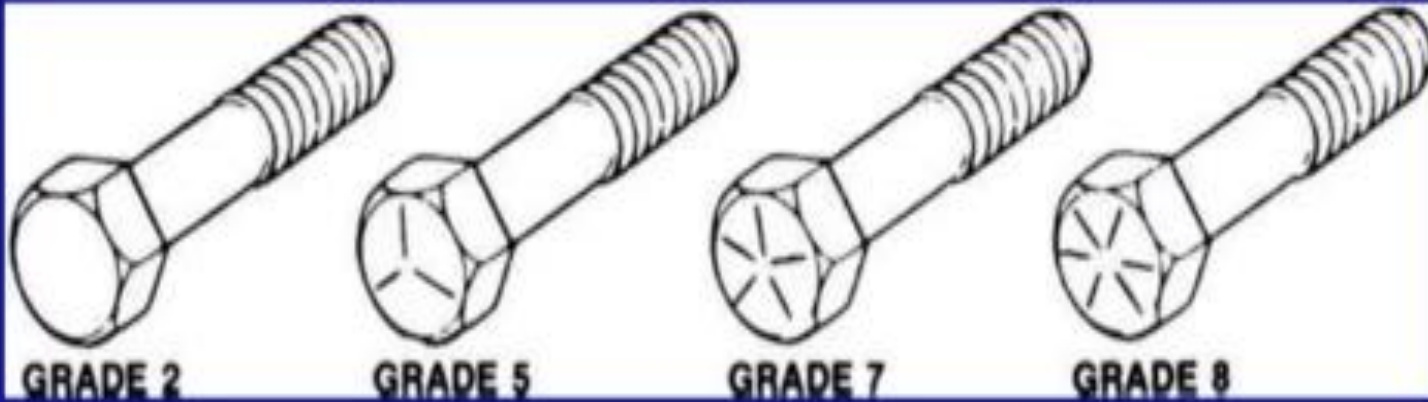
Measuring a Bolt 2

May 5th, 2020

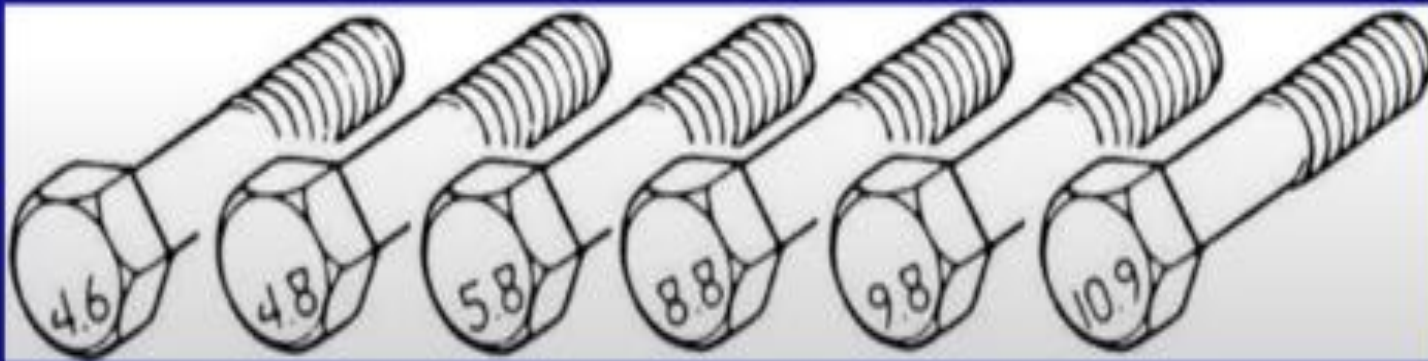
Objective: Students will properly measure a bolt and be able to identify different grades of bolts, both standard and metric.

Bolt Head Markings

SAE



METRIC



Head Markings

- Identify Strength of Bolt
- Not required

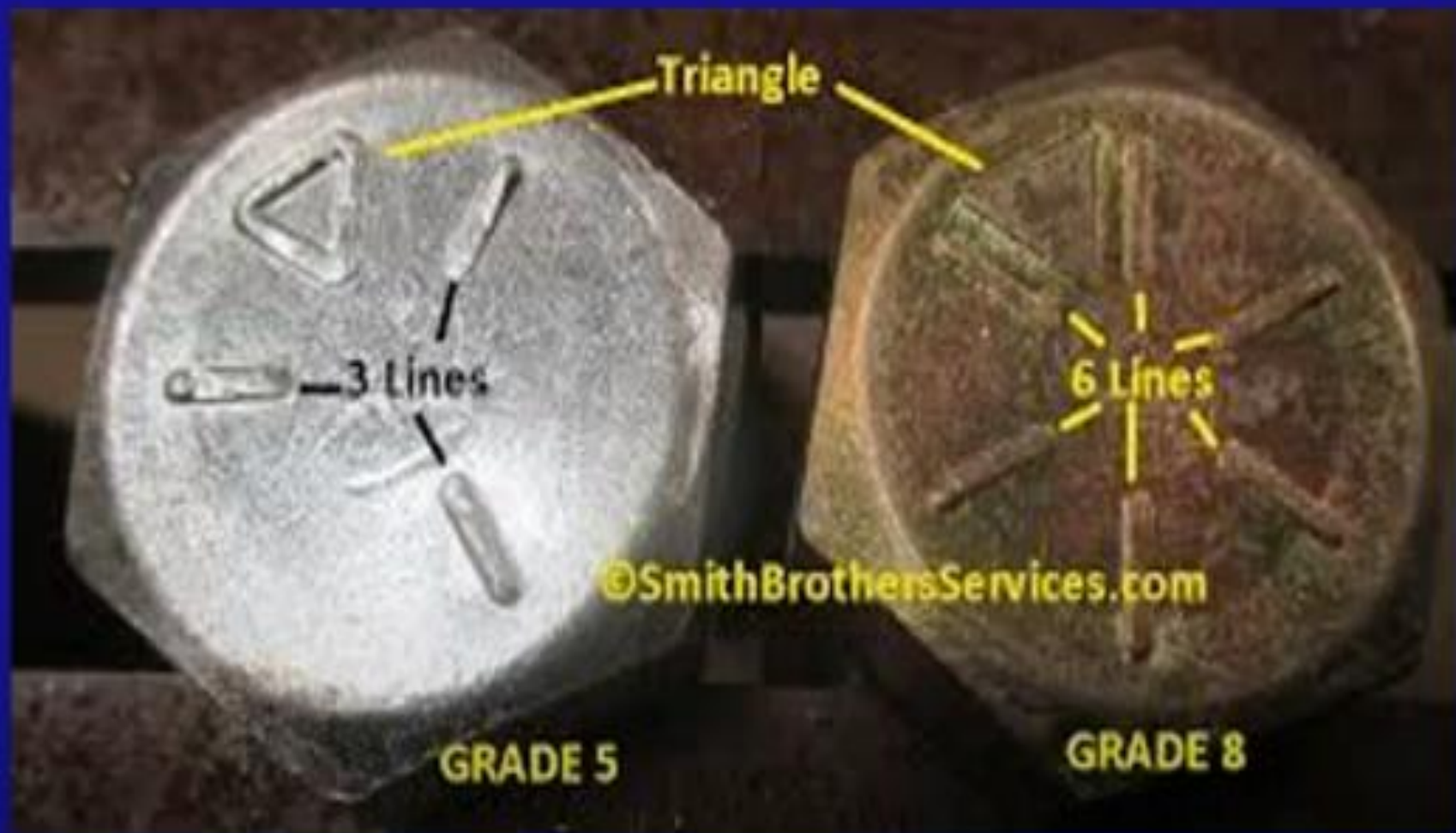
SAE Strength



- Lines on head of bolt
- Add 2 to the number of lines to determine grade (strength)
- Grade 2
- Grade 5
- Grade 8

SAE Grade or Strength

ADD 2



None = Grade 2

Three = Grade 5

Six = Grade 8

What Grade is this Bolt?



?

What Grade is this Bolt?



Grade 5

Which Bolt is Stronger?

A



B



?

Which Bolt is Stronger?

A



B



B

Metric Strength

- Numbers
- Uses a decimal
- Higher number = Stronger bolt



Metric Grade or Strength



5.8

8.8

9.8

10.9

12.9

What Grade is this Bolt?



?

What Grade is this Bolt?



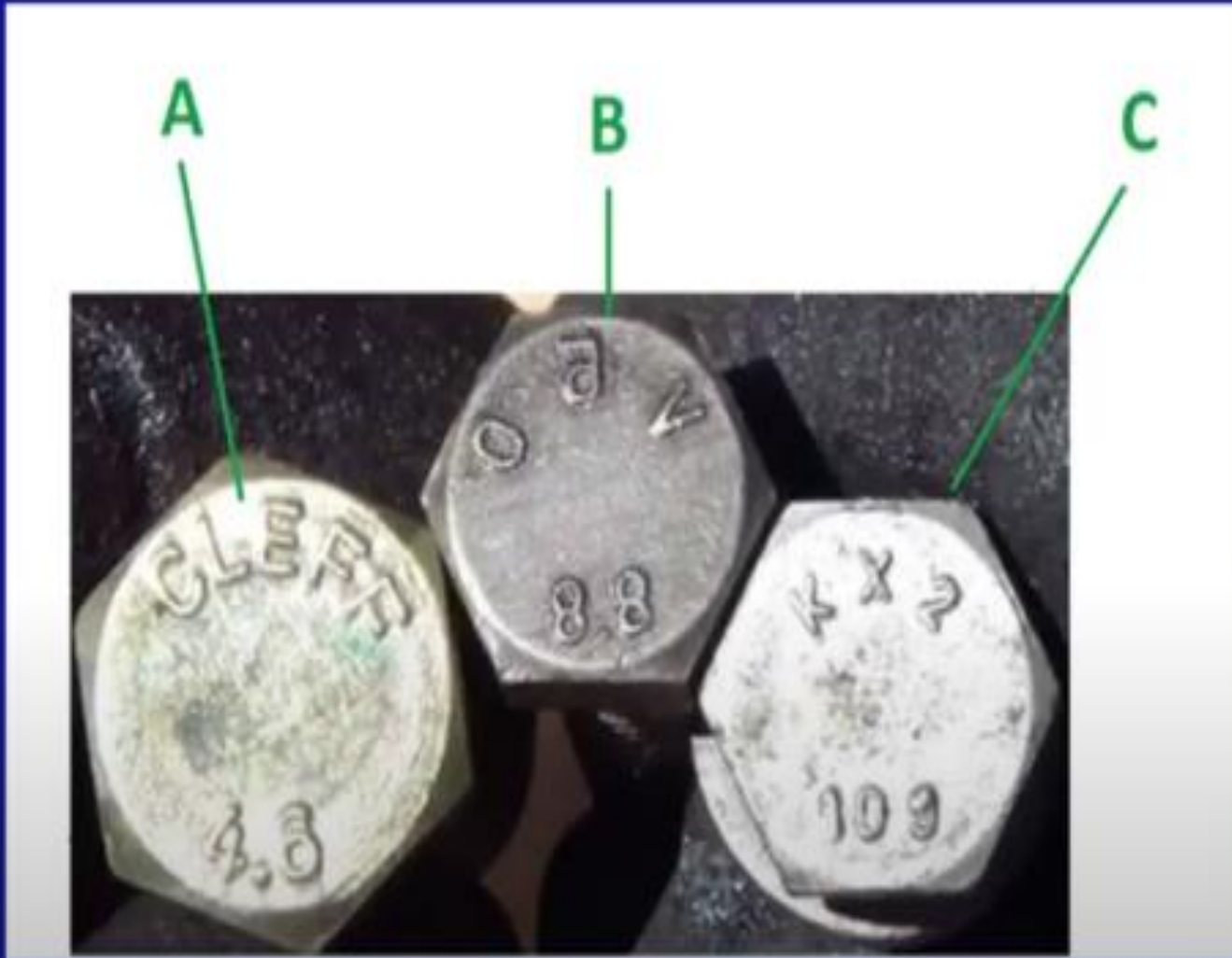
?

What Grade is this Bolt?

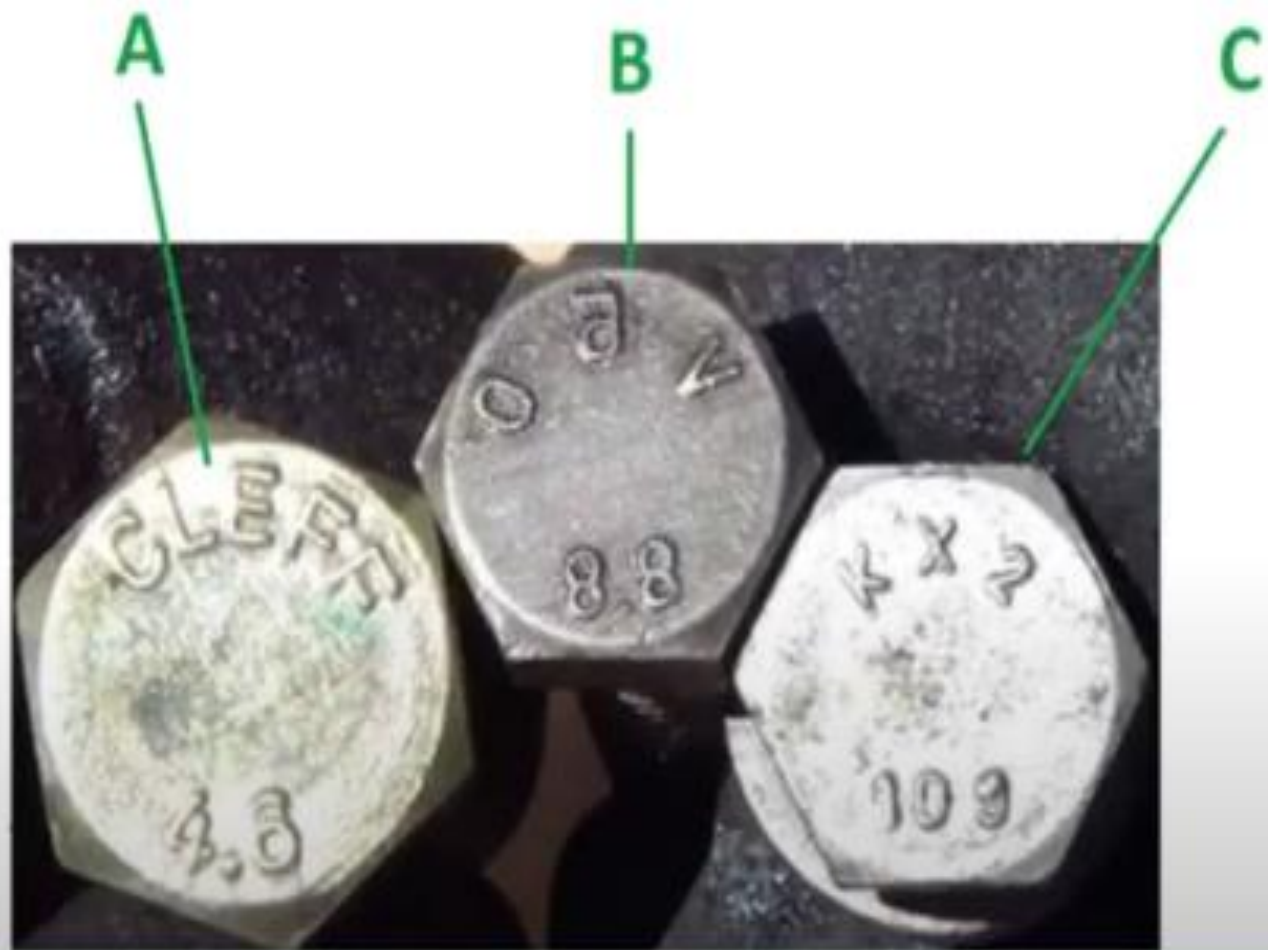


Grade
8.8

Which Bolt is Stronger?



Which Bolt is Stronger?



C

Which is the Metric Bolt?

A



B



?

Which is the Metric Bolt?

A



B



B

Nut Markings

SAE

Grade 5



Grade & markings
used on products
manufactured
prior to July 1999

Grade & markings
issued & revised
by SAE J995
July 1999

Grade 8



Grade & markings
used on products
manufactured
prior to July 1999

Grade & markings
issued & revised
by SAE J995
July 1999

What Grade is this Nut?



?

What Grade is this Nut?



- Grade 8

What Grade is this Nut?



?

What Grade is this Nut?



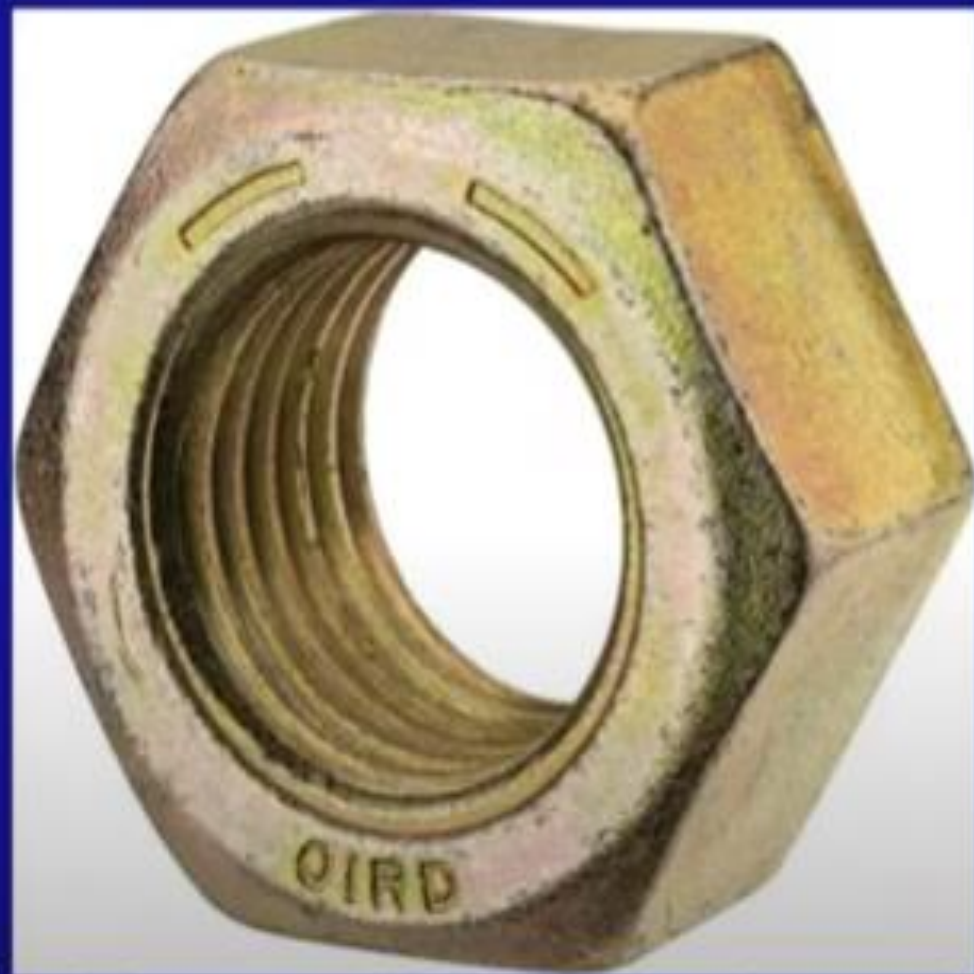
Grade 5

What Grade is this Nut?



?

What Grade is this Nut?



Grade 8

Metric Nut Markings



Grade 10



Grade 12



Grade 14