



# Industrial Technology Virtual Learning

**:measuring a bolt(part 2 of 2 )**

**May 1, 2020**



Lesson: May1 , 2020

**Objective/Learning Target:**

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

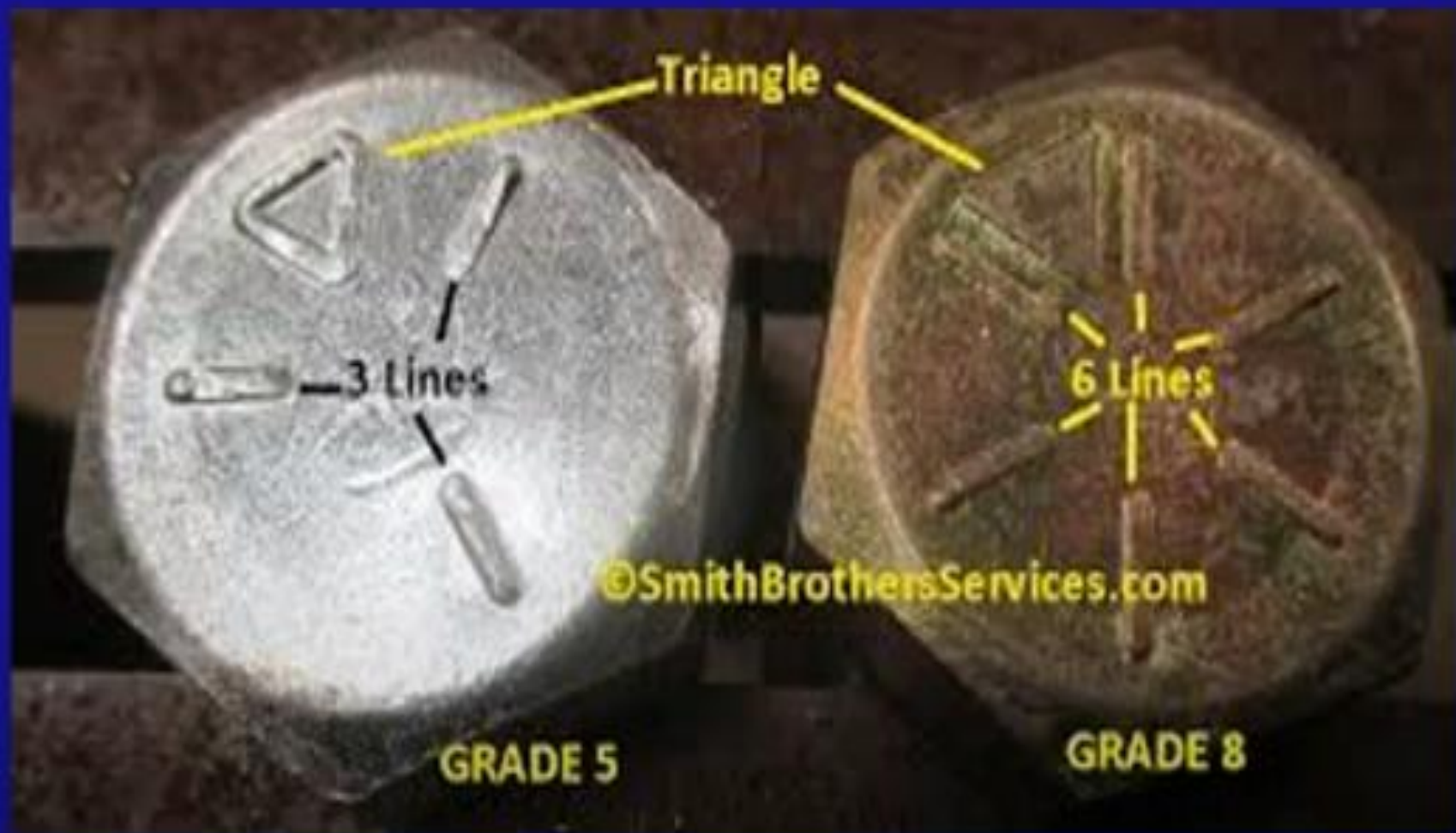
# SAE Strength



- 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?



Grade  
10.9

# What Grade is this Bolt?



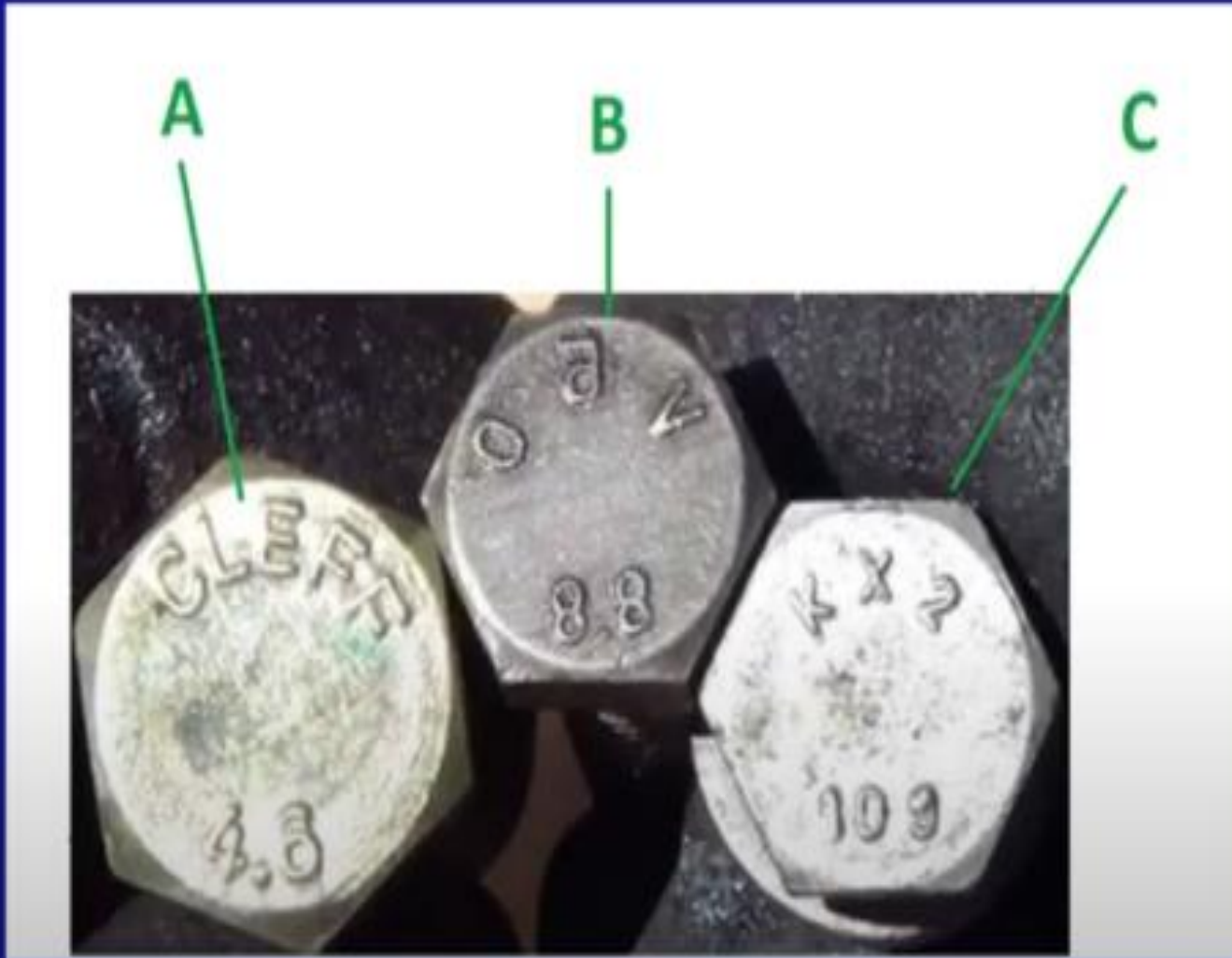
?

# What Grade is this Bolt?

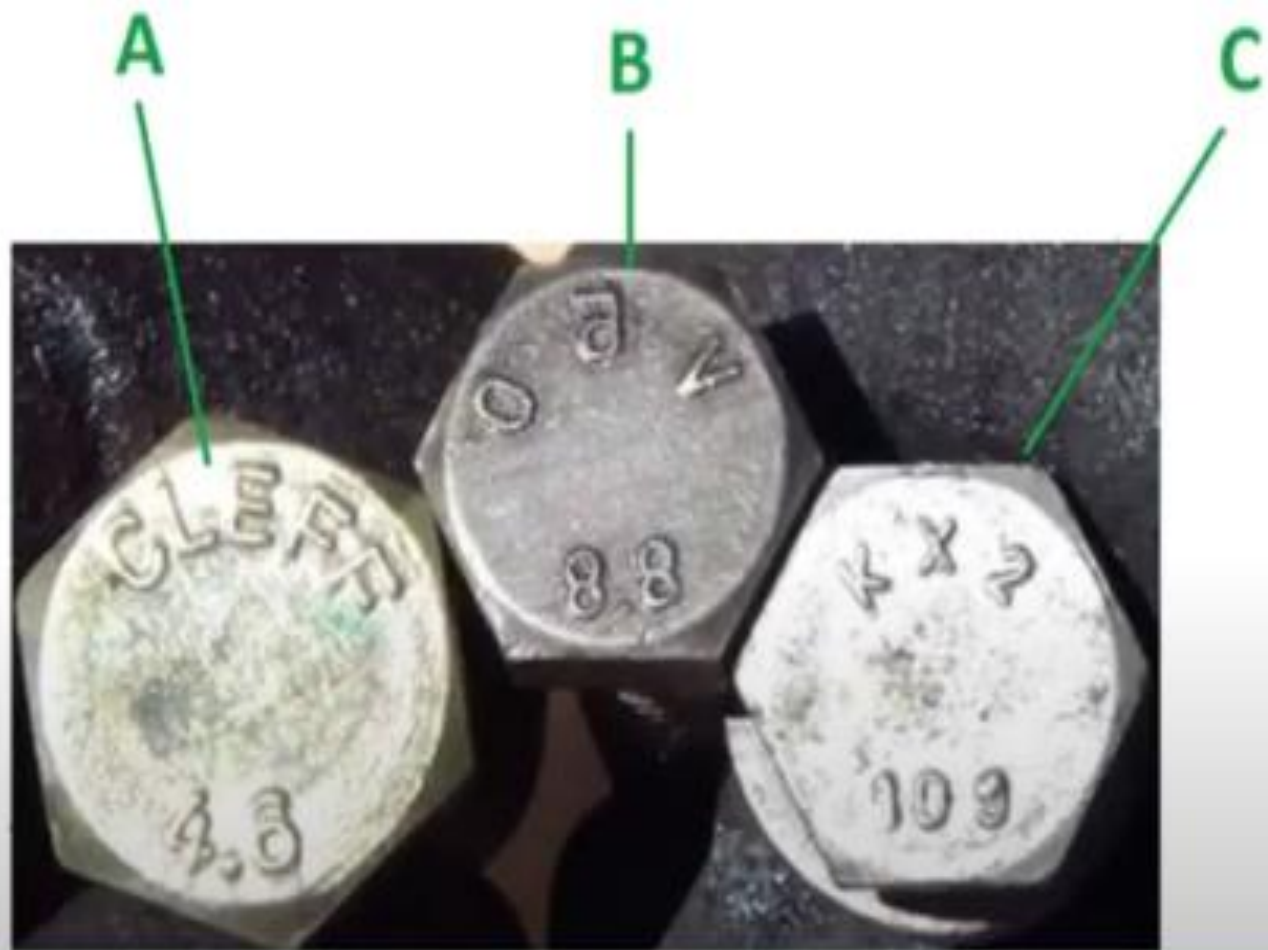


Grade  
8.8

# 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

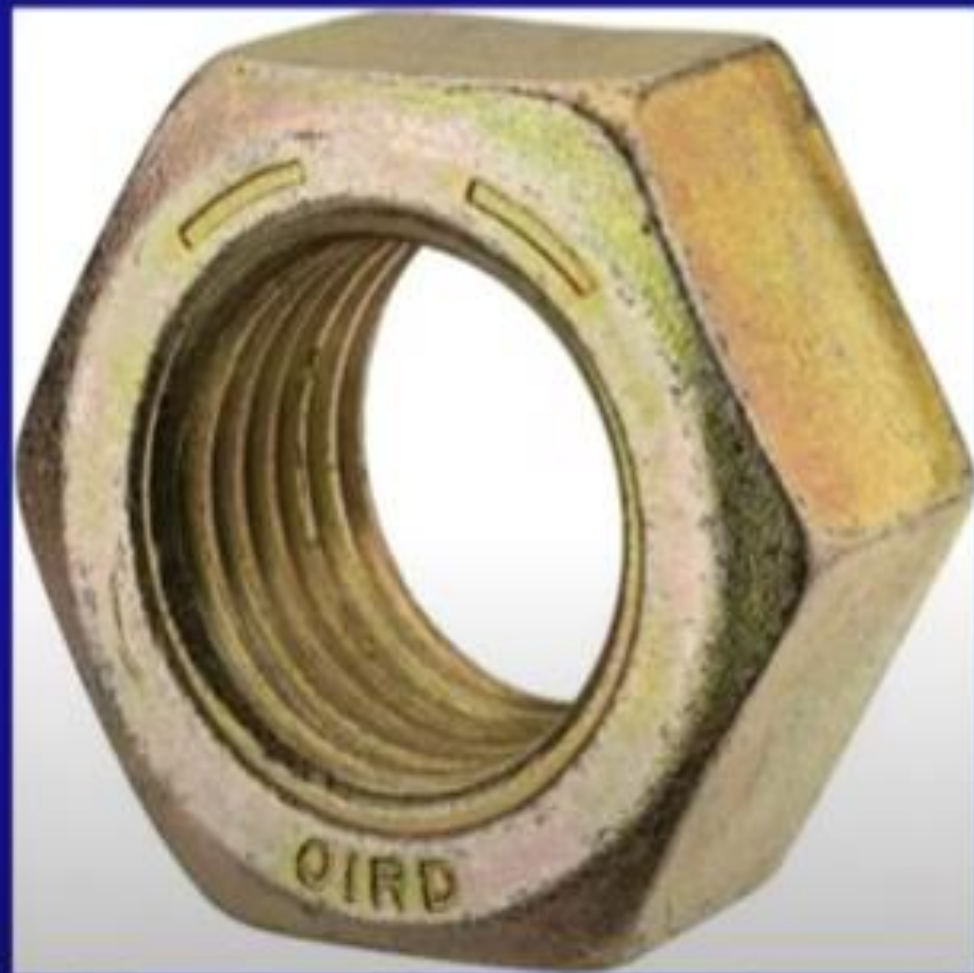


# What Grade is this Nut?



?

# What Grade is this Nut?



Grade 8

# Metric Nut Markings



Grade 10



Grade 12



Grade 14