

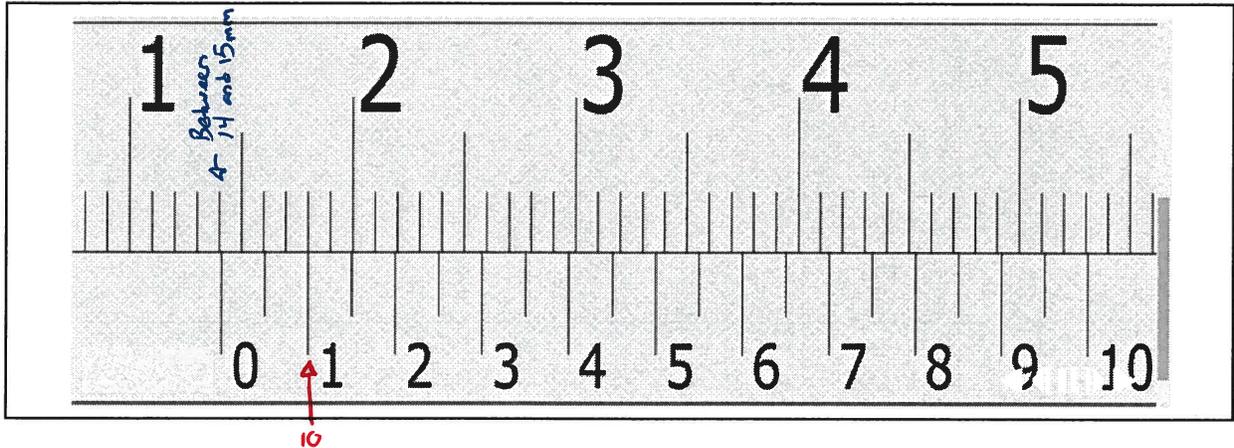
First Name: _____

Last Name: _____

Q2 - Worksheet - Linear Unit Conversions

Part 1 - Vernier Calipers

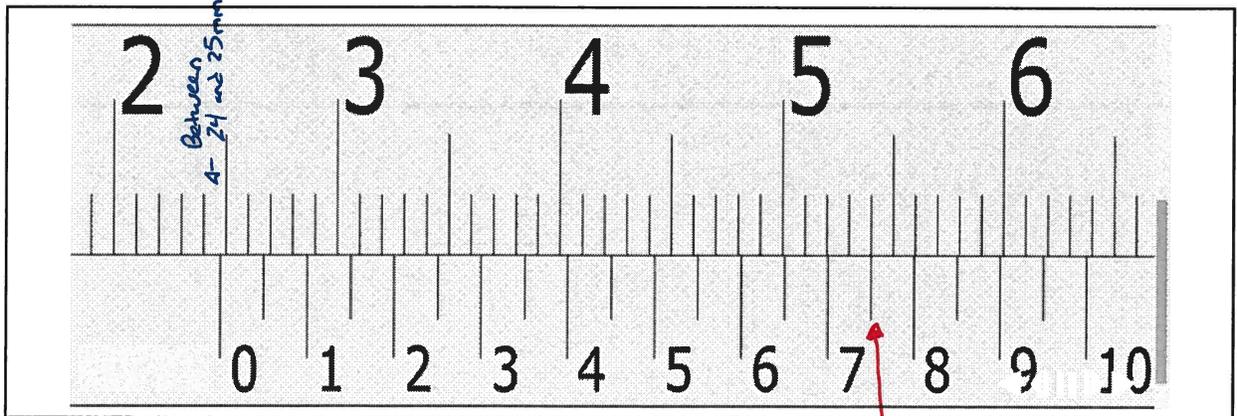
Use the following information to answer Q1:



Q1: What is the measurement of the Vernier Caliper, to the nearest 0.05mm?

14.10 mm

Use the following information to answer Q2:



Q2: What is the measurement of the Vernier Caliper, to the nearest 0.05mm?

24.75 mm

Part 2 – Proportional Reasoning

S.I. to S.I.		Exact?
1 km	1000 m	✓
1 m	100 cm	✓
1 cm	10 mm	✓

Imperial to Imperial		Exact?
1 mi.	1760 yd.	✓
1 yd.	3 ft.	✓
1 ft.	12 in.	✓

Imperial to S.I.		Exact?
1 mi.	1.609 km	x
1 yd.	0.9144 m	x
1 ft.	30.48 cm	✓
1 in.	2.54 cm	✓

Q3: Convert 585 cm to meters.

$$\begin{array}{r} x \\ \times \quad 585 \text{ cm} \\ \hline 1 \text{ m} = 100 \text{ cm} \end{array}$$

$$x = 5.85 \text{ m}$$

Q4: Convert 3000 yards to miles.

$$\begin{array}{r} x \\ \times \quad 3000 \text{ yd} \\ \hline 1 \text{ mi} = 1760 \text{ yd} \end{array}$$

$$x = 1.70 \text{ mi}$$

Q5: Convert 200 yards to meters.

$$\begin{array}{r} 200 \text{ yd} \\ \times \quad x \\ \hline 1 \text{ yd} = 0.9144 \text{ m} \end{array}$$

$$x = 182.88 \text{ m}$$

Q6: Convert 3.2 miles to yards.

$$\begin{array}{r} 3.2 \text{ mi} \\ \times \quad x \\ \hline 1 \text{ mi} = 1760 \text{ yd} \end{array}$$

$$x = 5632 \text{ yd}$$

Q7: Convert 2 km to yards.

Plan: km \rightarrow mi \rightarrow yd

$$\begin{array}{r} x \\ \times \quad 2 \text{ km} \\ \hline 1 \text{ mi} = 1.609 \text{ km} \end{array}$$

$$x = 1.243 \text{ mi}$$

$$\begin{array}{r} 1.243 \text{ mi} \\ \times \quad x \\ \hline 1 \text{ mi} = 1760 \text{ yd} \end{array}$$

$$x = 2187.7 \text{ yd}$$

Q8: Convert 20,000 inches to km.

Plan: inch \rightarrow cm \rightarrow m \rightarrow km

$$\begin{array}{r} 20,000 \text{ in} \\ \times \quad x \\ \hline 1 \text{ in} = 2.54 \text{ cm} \end{array}$$

$$x = 50800 \text{ cm}$$

$$\begin{array}{r} x \\ \times \quad 50,800 \text{ cm} \\ \hline 1 \text{ m} = 100 \text{ cm} \end{array}$$

$$x = 508 \text{ m}$$

$$\begin{array}{r} x \\ \times \quad 508 \text{ m} \\ \hline 1 \text{ km} = 1000 \text{ m} \end{array}$$

$$x = 0.508 \text{ km}$$

Part 3 – Unit Analysis

S.I. to S.I.		Exact?
1 km	1000 m	✓
1 m	100 cm	✓
1 cm	10 mm	✓

Imperial to Imperial		Exact?
1 mi.	1760 yd.	✓
1 yd.	3 ft.	✓
1 ft.	12 in.	✓

Imperial to S.I.		Exact?
1 mi.	1.609 km	x
1 yd.	0.9144 m	x
1 ft.	30.48 cm	✓
1 in.	2.54 cm	✓

Q9: Convert 3.5 km to meters.

$$\frac{3.5 \cancel{\text{km}}}{1} \times \frac{1000 \cancel{\text{m}}}{1 \cancel{\text{km}}} = \frac{3500 \text{m}}{1}$$

$$= 3500 \text{m}$$

Q10: Convert 200 feet to yards.

$$\frac{200 \cancel{\text{ft}}}{1} \times \frac{1 \cancel{\text{yd}}}{3 \cancel{\text{ft}}} = \frac{200 \text{yd}}{3}$$

$$= 66.\bar{6} \text{yd}$$

Q11: Convert 5 miles to km.

$$\frac{5 \cancel{\text{mi}}}{1} \times \frac{1.609 \cancel{\text{km}}}{1 \cancel{\text{mi}}} = \frac{8.045 \text{km}}{1}$$

$$= 8.045 \text{km}$$

Q12: Convert 300 inches to feet.

$$\frac{300 \cancel{\text{in}}}{1} \times \frac{1 \cancel{\text{ft}}}{12 \cancel{\text{in}}} = \frac{300 \text{ft}}{12}$$

$$= 25 \text{ft}$$

Q13: Convert 500 inches to yards.

Plan: in → ft → yd

$$\frac{500 \cancel{\text{in}}}{1} \times \frac{1 \cancel{\text{ft}}}{12 \cancel{\text{in}}} \times \frac{1 \cancel{\text{yd}}}{3 \cancel{\text{ft}}} = \frac{500 \text{yd}}{36} = 13.\bar{8} \text{yd}$$

Q14: Convert 2500 yards to kilometers.

Plan: yd → m → km

$$\frac{2500 \cancel{\text{yd}}}{1} \times \frac{0.9144 \cancel{\text{m}}}{1 \cancel{\text{yd}}} \times \frac{1 \cancel{\text{km}}}{1000 \cancel{\text{m}}} = \frac{2286 \text{km}}{1000} = 2.286 \text{km}$$