

Name: \_\_\_\_\_

Date \_\_\_\_\_

Topic : Error in Measurement- Worksheet 1

Do the following:

If the Tolerance of a dimension of a electronic part is as  $3.65 \pm 0.12$  cm

1. What is the top limit of range of tolerance?
2. What is the lower limit of range of tolerance?
3. What is the range of tolerance?

A LED monitor is rectangular in shape to the nearest inch, the length of the monitor is 16 inches and its width to the nearest inch is 12 inches.

4. What is the smallest Length?
5. What is the smallest Width?
6. What is the Area?

In an industry part of an machine has a length of 5.6 ft and width of  $4 \text{ ft} \pm 0.6$  ft.

7. What is the top limit of range of tolerance for width of part of that instrument?
8. Find the relative error in the width of that part?
9. Find the relative error in the area of that part?
10. Find the absolute error in the area of that part?



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Topic : Error in Measurement- Worksheet 1 **ANSWERS**

1. **Top limit = 3.77**
2. **Lower limit = 3.53**
3. **Range of tolerance = 3.65**
4. **Smallest length = 15.5**
5. **Smallest width = 11.5**
6. **Area = 178.25**
7. **Top limit = 4.6**
8. **relative error = 0.6**
9. **relative error = 0.026**
10. **Absolute error = 0.6**



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Topic : Error in Measurement- Worksheet 2

Do the following:

If the Tolerance of a dimension of a machine part is as  $4.76 \pm 0.15$  cm

1. What is the top limit of range of tolerance?
2. What is the lower limit of range of tolerance?
3. What is the range of tolerance?

A box is rectangular in shape to the nearest inch, the length of the box is 20 inches and its width to the nearest inch is 16 inches.

4. What is the smallest Length?
5. What is the smallest Width?
6. What is the Area?

In an industry part of an machine has a length of 7.6 ft and width of  $8 \text{ ft} \pm 2.05$  ft.

7. What is the top limit of range of tolerance for width of part of that instrument?
8. Find the relative error in the length of that part?
9. Find the relative error in the area of that part?
10. Find the absolute error in the area of that part?



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Topic : Error in Measurement- Worksheet 2 **ANSWERS**

1. **Top limit = 4.91**
2. **Lower limit = 4.61**
3. **Range of tolerance = 4.76**
4. **Smallest length = 19.5**
5. **Smallest width = 15.5**
6. **Area = 302.25**
7. **Top limit = 10.05**
8. **Relative error = 0**
9. **Relative error = 0.034**
10. **Absolute error = 2.05**



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Topic : Error in Measurement- Worksheet 3

Do the following:

If the Tolerance of a dimension of a vacuum cleaner part is as  $4.66 \pm 0.52$  cm

1. What is the top limit of range of tolerance?
2. What is the lower limit of range of tolerance?
3. What is the range of tolerance?

A water tank is rectangular in shape to the nearest inch, the length of the water tank is 25 inches and its width to the nearest inch is 19 inches.

4. What is the smallest Length?
5. What is the smallest Width?
6. What is the Area?

In an industry part of an machine has a length of 4.4 ft and width of  $3 \text{ ft} \pm 0.4$  ft.

7. What is the top limit of range of tolerance for width of part of that instrument?
8. Find the relative error in the length of that part?
9. Find the relative error in the area of that part?
10. Find the absolute error in the area of that part?



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Topic : Error in Measurement- Worksheet 3 **ANSWERS**

1.

**Top limit = 5.18**

2.

**Lower limit = 4.14**

3.

**Range of tolerance = 4.66**

4.

**Smallest length = 24.5**

5.

**Smallest width = 18.5**

6.

**Area = 453.25**

7.

**Top limit = 3.4 ft**

8.

**Relative error = 0**

9.

**Relative error = 0.0303**

10.

**Absolute error = 0.4**



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Topic : Error in Measurement- Worksheet 4

Do the following:

If the Tolerance of a dimension of a engine is as  $7.72 \pm 0.77$  cm

1. What is the top limit of range of tolerance?
2. What is the lower limit of range of tolerance?
3. What is the range of tolerance?

A aquarium is rectangular in shape to the nearest inch, the length of the aquarium is 22 inches and its width to the nearest inch is 8 inches.

4. What is the smallest Length?
5. What is the smallest Width?
6. What is the Area?

In an industry part of an machine has a length of 7.5 ft and width of  $13 \text{ ft} \pm 0.9$  ft.

7. What is the top limit of range of tolerance for width of part of that instrument?
8. Find the relative error in the width of that part?
9. Find the relative error in the area of that part?
10. Find the absolute error in the area of that part?



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Topic : Error in Measurement- Worksheet 4 **ANSWERS**

1. **Top limit = 8.49**
2. **Lower limit = 6.95**
3. **Range of tolerance = 7.72**
4. **Smallest length = 21.5**
5. **Smallest width = 7.5**
6. **Area = 161.25**
7. **Top limit = 13.9**
8. **Relative error = 0.9**
9. **Relative error = 0.00923**
10. **Absolute error = 0.9**





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Topic : Error in Measurement- Worksheet 5

Do the following:

If the Tolerance of a dimension of a airplane is as  $8.68 \pm 0.43$  cm

1. What is the top limit of range of tolerance?
2. What is the lower limit of range of tolerance?
3. What is the range of tolerance?

A pen holder is rectangular in shape to the nearest inch, the length of the pen holder is 12 inches and its width to the nearest inch is 9 inches.

4. What is the smallest Length?
5. What is the smallest Width?
6. What is the Area?

In an industry part of an machine has a length of 9.4 ft and width of  $6 \text{ ft} \pm 5.8$  ft.

7. What is the top limit of range of tolerance for width of part of that instrument?
8. Find the relative error in the length of that part?
9. Find the relative error in the area of that part?
10. Find the absolute error in the area of that part?



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Topic : Error in Measurement- Worksheet 5 **ANSWERS**

1. **Top limit = 9.11**

2. **Lower limit = 8.25**

3. **Range of tolerance = 8.68**

4. **Smallest length = 11.5**

5. **Smallest width = 8.5**

6. **Area = 97.75**

7. **Top limit = 11.8**

8. **Relative error = 0**

9. **Relative error = 0.102**

10. **Absolute error = 5.8**

