

Name _____

Bouncing a Ball

Question: How does the height from which a ball is dropped affect its bounce?

Hypothesis: The ball will bounce 10cm.

Materials: rubber ball, meter stick, graph paper, tape

Experiment:

Control: I controlled the ball.

Independent Variable: Height

Dependent Variable: Ball

Constant Conditions: The ball bounced every time.

Procedure:

1. Tape meter stick to wall. Hold a rubber ball at a height of 15 cm, then drop it.
2. Measure the height to which the ball bounces.
3. Continue increasing the height of the drop by 15 cm. Perform the final drop at 90 cm. Record all the bounce measurements.
4. Make a graph. The horizontal line should show the height of the drop (cm), and the vertical line should show the height of the bounce (cm). Number each axis from 0 to 90 by fives. Plot your data in the chart below.

Data Chart

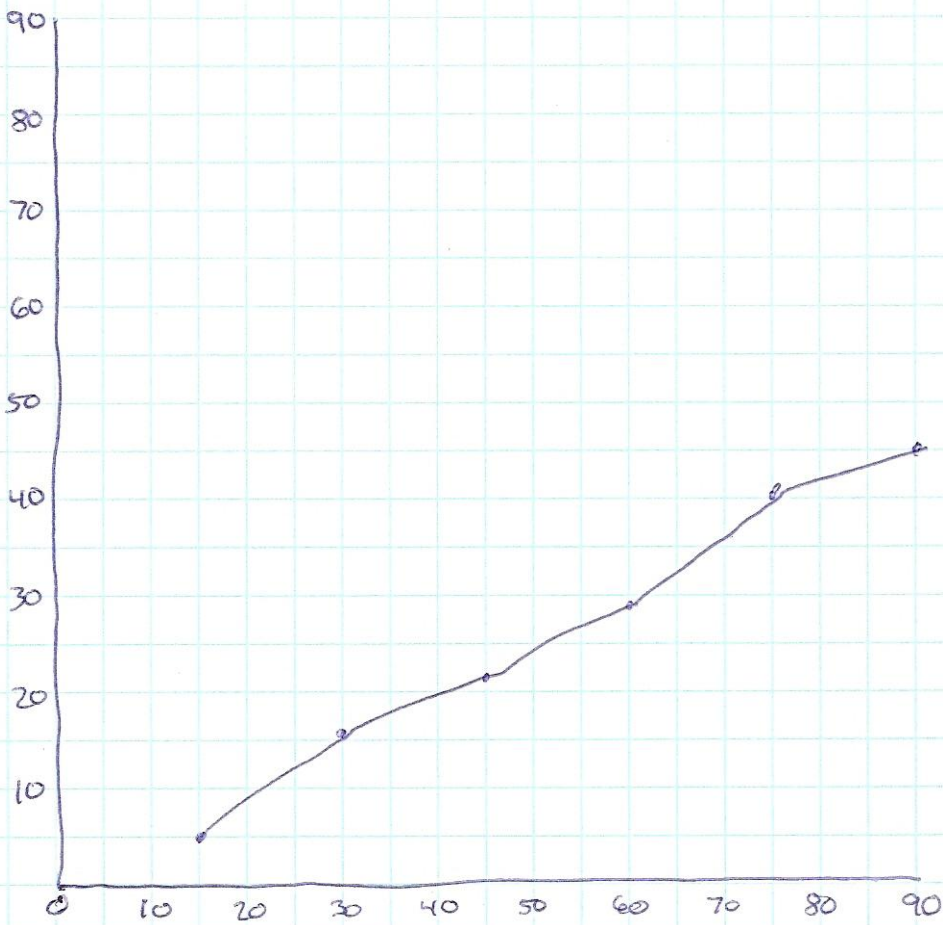
Height of Drop	Height of Bounce
15 cm	5
30 cm	16
45 cm	22
60 cm	29
75 cm	40
90 cm	45



Conclusion: The ball bounced at different heights.

Extension:

What energy changes occur each time the ball is dropped and bounces? (Answer in terms of potential and kinetic energy.) The gravity changed



Name _____

Bouncing a Ball

Question: How does the height from which a ball is dropped affect its bounce?

Hypothesis: The ball will bounce higher when you change the drop height.

Materials: rubber ball, meter stick, graph paper, tape

Experiment:

Control: No drop

Independent Variable: Start height

Dependent Variable: Finish height

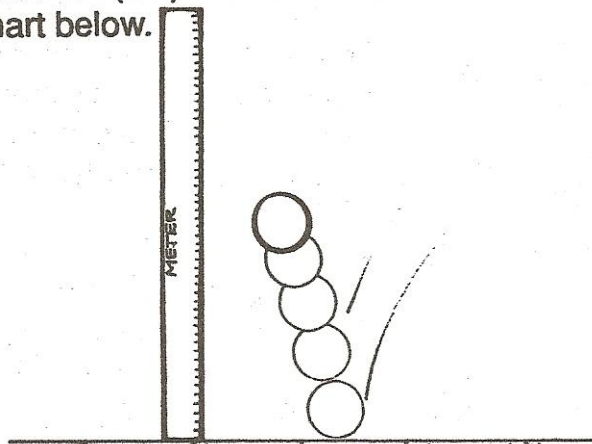
Constant Conditions: The ball

Procedure:

1. Tape meter stick to wall. Hold a rubber ball at a height of 15 cm, then drop it.
2. Measure the height to which the ball bounces.
3. Continue increasing the height of the drop by 15 cm. Perform the final drop at 90 cm. Record all the bounce measurements.
4. Make a graph. The horizontal line should show the height of the drop (cm), and the vertical line should show the height of the bounce (cm). Number each axis from 0 to 90 by fives. Plot your data in the chart below.

Data Chart

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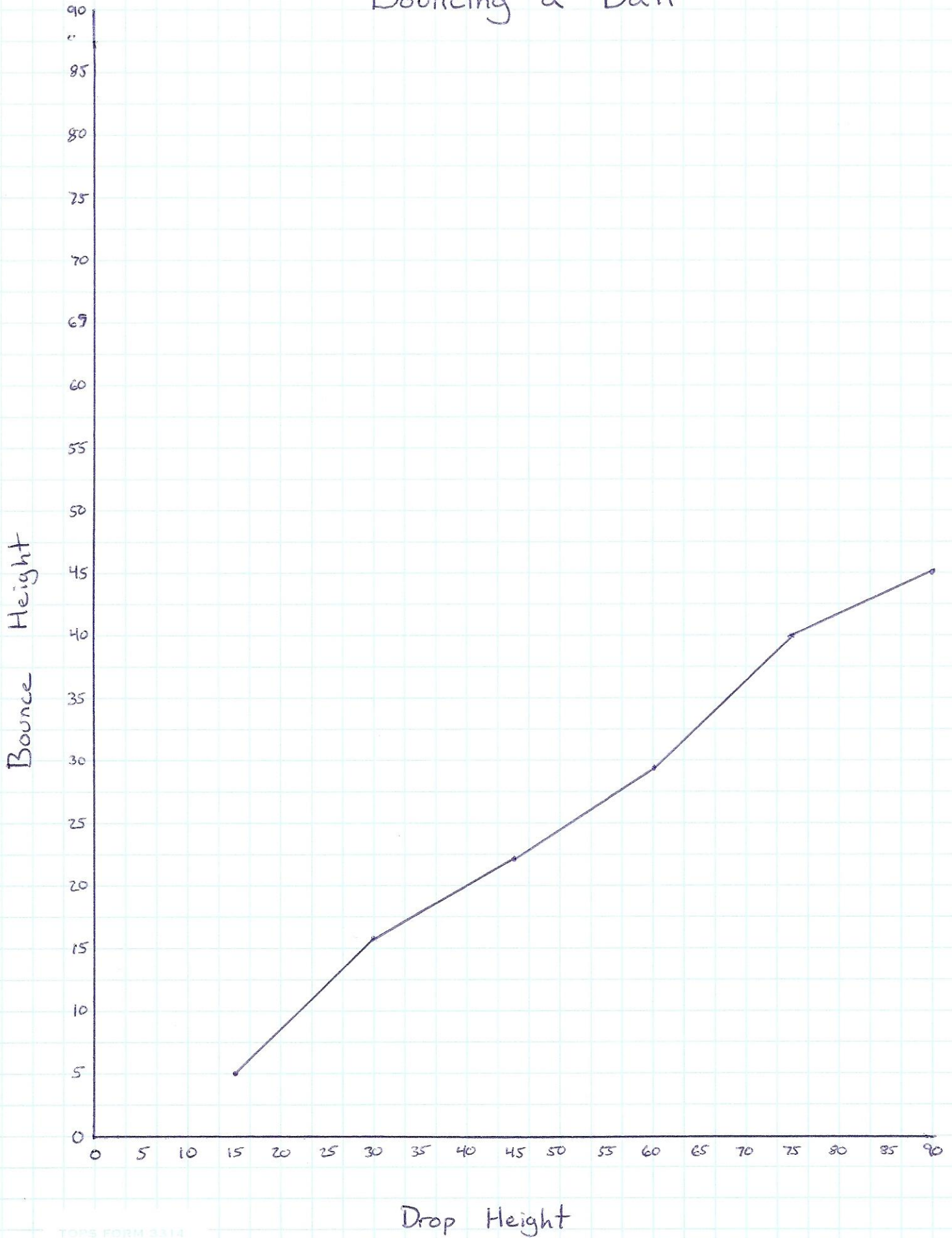


Conclusion: The ball bounced higher, but it was difficult to see the exact height.

Extension:

What energy changes occur each time the ball is dropped and bounces? (Answer in terms of potential and kinetic energy.) The ball has potential energy, then it gets kinetic energy.

Bouncing a Ball



Bouncing a Ball

Question: How does the height from which a ball is dropped affect its bounce?

Hypothesis: The ball will bounce higher when it is dropped from a higher height.

Materials: rubber ball, meter stick, graph paper, tape

Experiment:

Control: No drop = No bounce

Independent Variable: The height the ball is dropped from

Dependent Variable: The height the ball bounces to

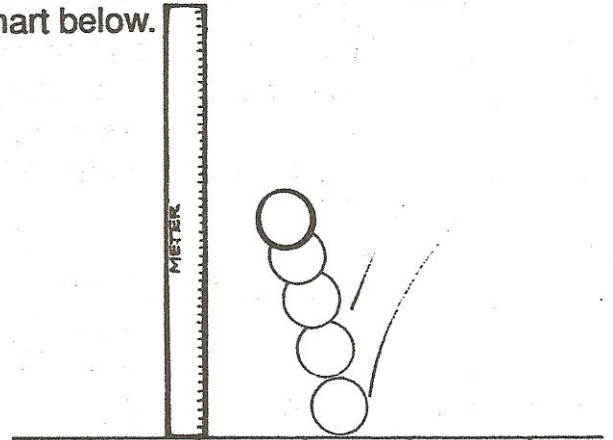
Constant Conditions: The ball, the floor

Procedure:

1. Tape meter stick to wall. Hold a rubber ball at a height of 15 cm, then drop it.
2. Measure the height to which the ball bounces.
3. Continue increasing the height of the drop by 15 cm. Perform the final drop at 90 cm. Record all the bounce measurements.
4. Make a graph. The horizontal line should show the height of the drop (cm), and the vertical line should show the height of the bounce (cm). Number each axis from 0 to 90 by fives. Plot your data in the chart below.

Data Chart

Height of Drop	Height of Bounce
15 cm	5 cm
30 cm	16 cm
45 cm	22 cm
60 cm	29 cm
75 cm	40 cm
90 cm	45 cm

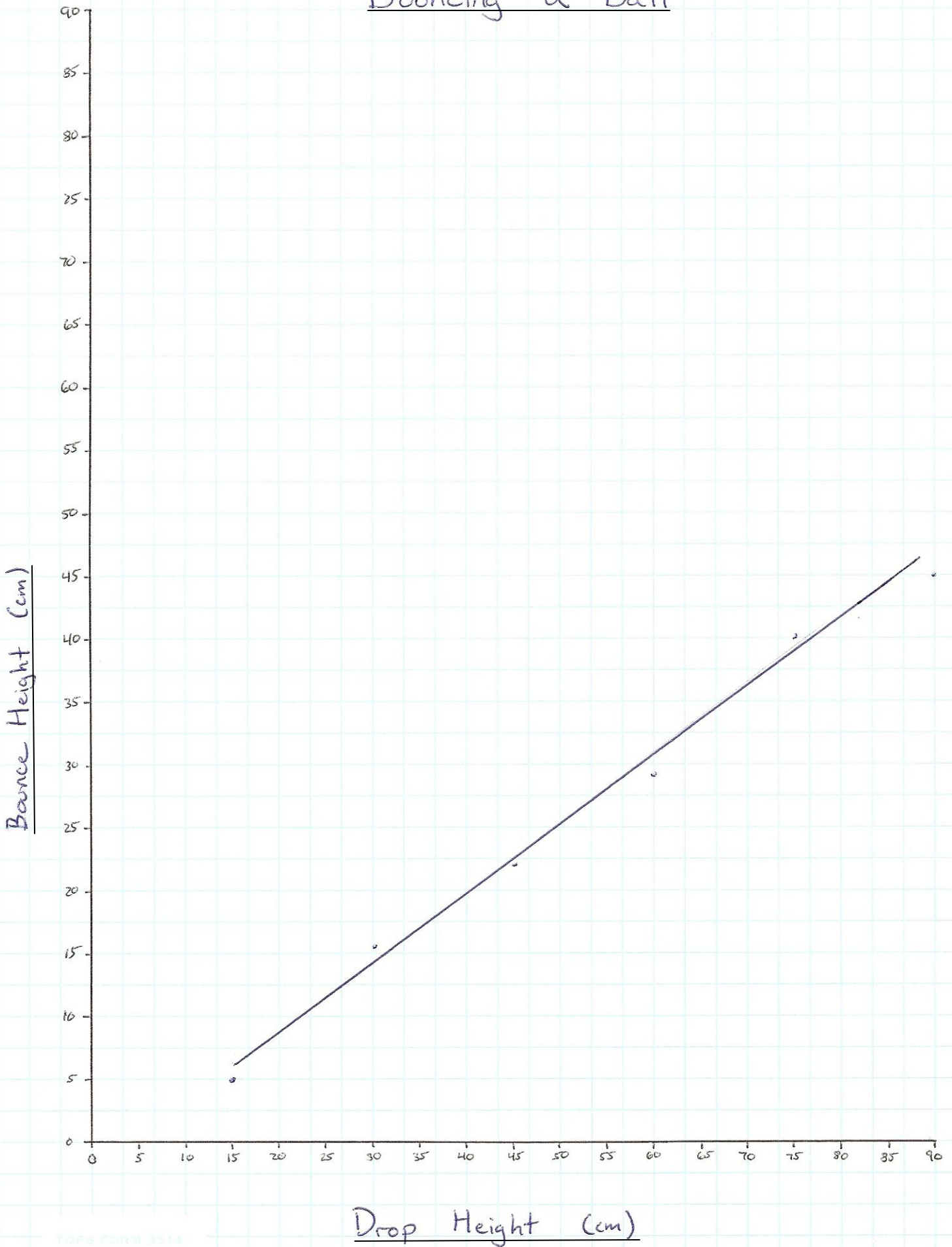


Conclusion: My hypothesis was proven. The ball bounced higher when it was dropped from a higher height. The actual height was difficult to read because the ball moved too fast.

Extension:

What energy changes occur each time the ball is dropped and bounces? (Answer in terms of potential and kinetic energy.) When the ball is in the air it has potential energy. When it moves that energy is converted into kinetic energy.

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