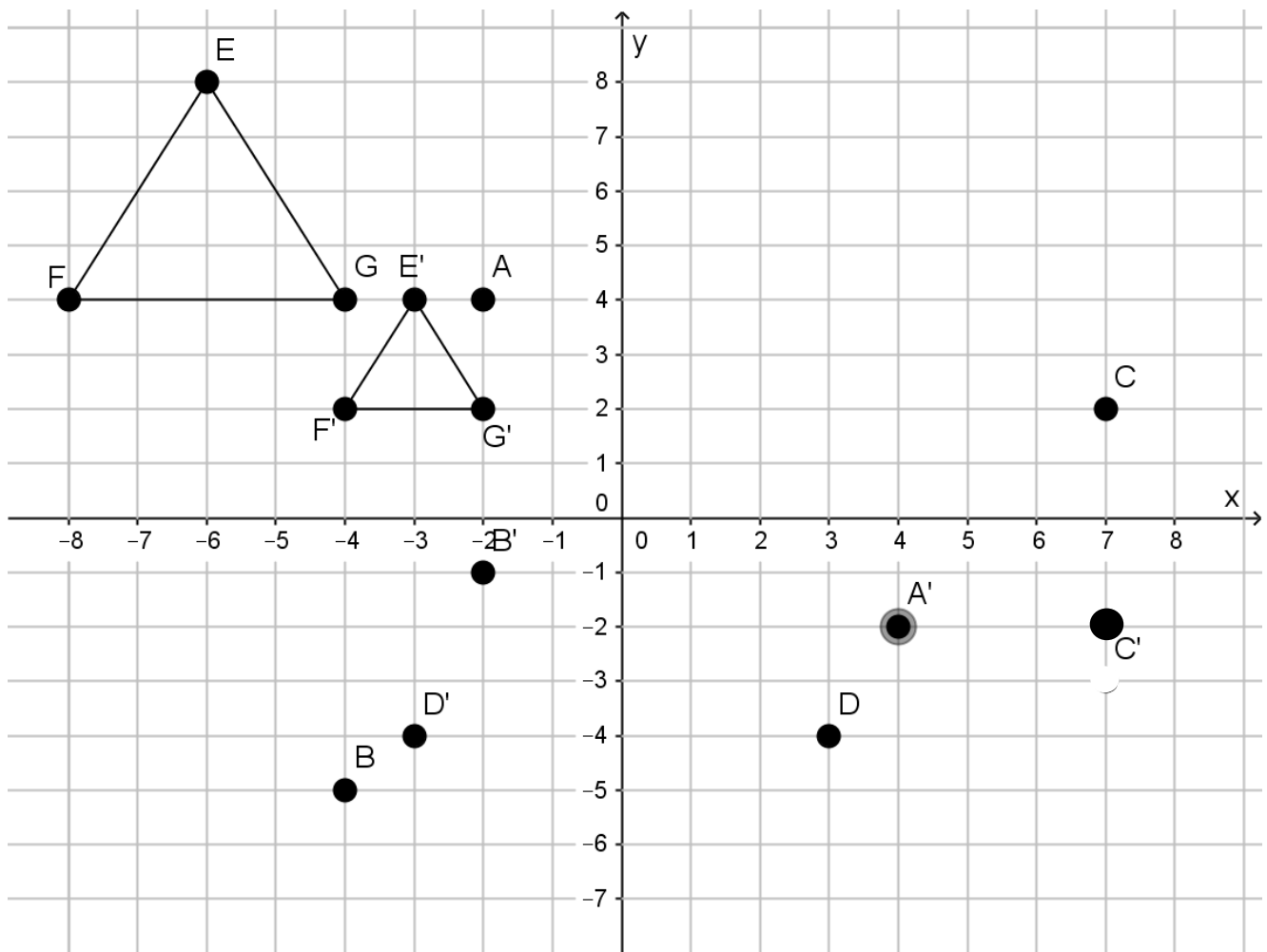


# SHARP

## Worksheet 29: Term 4 Revision

### Grade 9 Mathematics

1. For each of the coordinates below, give the rule for the transformation.



2. Use the given rule to transform the given point:
- A (-3, 4) reflected about the x-axis.
  - B (4; -12) reflected about the line  $y = x$ .
  - C (-2; 4) translated 4 units down and 12 units left.
  - D (3; -1) reflected about the y-axis.

3. Given the image of the point and the transformation, find the original point.

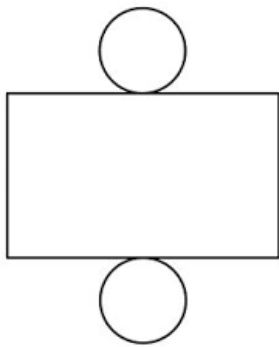
- a)  $E' (16, 8)$  enlarged by a factor of 4.
- b)  $F' (1; 5)$  translated 3 units up and 4 units to the right.
- c)  $G' (-3; 1)$  reflected about the line  $y = x$ .
- d)  $H' (-6; 8)$  reflected about the x-axis.

4. If a triangle is enlarged by a factor of 3, how will the following change?

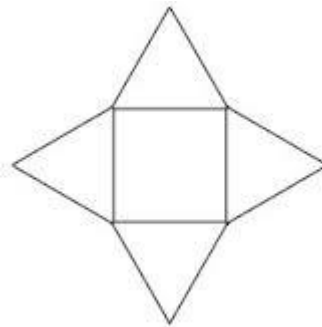
- a) The coordinates of the vertices
- b) The perimeter of the triangle
- c) The area of the triangle.

5. Give the names of the following 3-dimensional shapes from their nets.

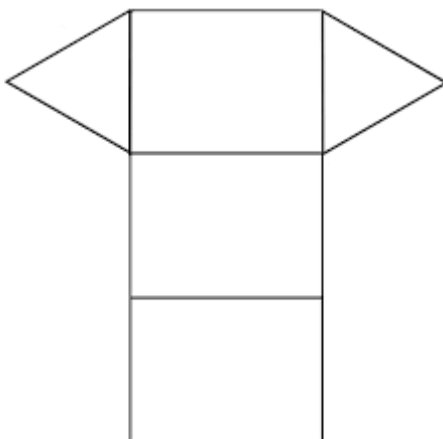
a)



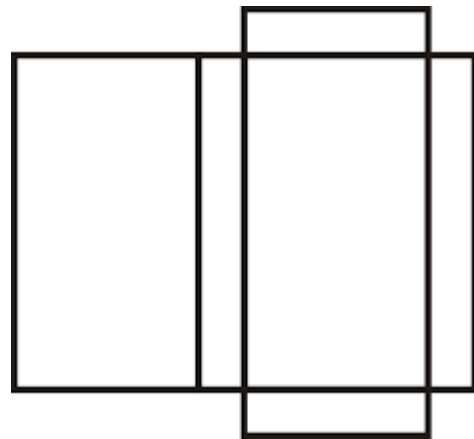
b)



c)



d)



6. For each of the shapes in question 5 give the number of vertices, edges and faces.
7. For each of the shapes in question 5, give the formula for surface area and volume.
8. What is the difference between a sample and a population?
9. Say whether you would use a survey, open-ended questionnaire, or interview to get the following information from people and give a reason for your choice.
  - a) A person's favourite restaurant
  - b) Which is better, tea or coffee?
  - c) How a person feels about their favourite sports team.
  - d) How to make coffee
  - e) When a person should buy a house.
  - f) A student's favourite study method.
10. They say you are what you eat, so Melinda decided to do some research about the amount of calories in different fast food take-aways burger options. Here are her results:

|             |                 |         |
|-------------|-----------------|---------|
| MacDonalds  | – 300 Calories  | 1254kJ  |
| Burger King | – 670 Calories  | 2803 kJ |
| Steers      | - 360 Calories  | 1506 kJ |
| Nandos      | - 406 Calories  | 1699 kJ |
| Spur        | - 1275 Calories | 2164 kJ |
| Wimpy       | - 421 Calories  | 1760kJ  |
| KFC         | - 441 Calories  | 1845 kJ |

- a) Find the average number of Calories and kJ in fast food burgers.
- b) Find the median number of kJ in a burger.
- c) Find the range of calories and kJ in the burgers



- d) Are there any outliers or extremes for these burgers?
- e) Draw a bar graph that represents the calories of all the different burgers.
- f) Draw a scatterplot of number of Calories vs number of kilo Joules.
- g) From the scatterplot answer the following questions:
  - i) What kind of relationship does the data have?
  - ii) If a burger was 200 Calories, how many kJoules of energy would you expect it to have?
- h) Do you think there could have been any sources of error or bias if Melinda found her information on the internet?

11. A coin is thrown three times.

- a) Draw a tree diagram to represent all the possible outcomes.
- b) What is the probability of throwing three heads in a row?
- c) What is the probability of throwing two heads and one tails in any order?

12. A spinner with five equal parts (numbered 1 to 5) is spun and another spinner with three equal parts (with the colours red, blue and yellow) is spun afterwards.

- a) Draw a tree-diagram to represent all the possible probabilities.
- b) What is the chance of the first spinner landing on the number 5 and the second spinner landing on the colour red?
- c) What is the chance of the first spinner landing on an even number and the second spinner landing on the colour blue?
- d) What is the chance of the first spinner not landing on an even number?

13. A coin is flipped 20 times. Here are the results:

H H T T H H T H H H T T T H T T H H H T

- a) What is the relative frequency of landing on heads?
- b) How is this possible?