Proportional Relationships in Biology
1) Are 2/3 and 6/12 proportional?
   1) No; 6/12 = 1/2 ≠ 2/3

2) Are 2/3 and 10/15 proportional?
   1) Yes; 2/3 = (2*5)/(3*5) = 10/15

3) Are 2/3 and 4/9 proportional?
   1) No; both are simplified
Proportional Shapes

• What does it mean for two shapes to be similar or proportional?

• Same shape, different size.

Photo by Simon Stump
Proportional Shapes

Height = 4
Width = 4

Height = 10
Width = 4

Height = 10
Width = 10
Proportional Relationships in Biology

- In biology, some relationships are proportional, and some are not.
- This will sometimes tell us something about the organism.
Proportional Relationships in Biology

• Does body shape change with age?
• Is a human baby proportional to a human adult?
Proportional Relationships in Biology

- In frogs, a small frog and a big frog do look the same…
Proportional Relationships in Biology

- Which has proportionately bigger legs: an ant, or an elephant?
- An elephant is 3.3 m tall, and has a foot 0.5 m wide.
- An ant is 4 mm tall, and has a foot 0.06 mm wide.
Proportions in plants

• Are large and small plants proportional?

Pictures by Mark Hofstetter and Amada44, downloaded from Wikipedia