# Balanced Assessment *in* Mathematics

*6*

These tasks give you a chance to show how you reason and solve mathematical problems.

Please show your work and reasoning in the spaces provided.

Name: _____     Male  Female

School: _____ City:     _____

Teacher: _____ Grade: _____

Date: _____

Do not write in the box below:

| 6 | Sewing 10 | Truffles 9 | Boxes 8 | Skate Boarding 6 | A Board Game 7 | Total 40 |
|---|---|---|---|---|---|---|
| 09 | | | | | | |

# Sewing

This problem gives you the chance to:
• use mathematics in a real life situation

Amy is sewing some pants for herself.

This is the rule for how much fabric she needs to buy.

• Measure from your waist to the finished length of the pants
• Double this measurement
•  Add 8 inches

1. Amy's measurement from her waist to the finished length of the pants is 35 inches.

   How many inches of fabric does she need?        _____

2. Fabric is actually sold not in inches, but in yards. Each yard is 36 inches.
   The smallest amount you can buy is a quarter of a yard. So, if you want one yard and 25 inches
   you have to buy one and three quarter yards.

   How much fabric must Amy buy for the pants?        _____

3. Chris is also making some pants for herself.
   She buys fabric, thread, buttons and a zipper.
   Complete Chris's bill

|  | $ |
|---|---|
| $2^1/_4$  yards of fabric at $5 a yard |  |
| 2 spools thread at 35¢ a spool |  |
| 3 buttons at 25¢ each |  |
| Zipper 60¢ |  |
| Total before sales tax |  |
| Sales tax at 8% (round this to nearest cent) |  |
| **Total** |  |

**10**

Sewing

# Truffles

This problem gives you the chance to:
• do calculations in a real situation

Linda makes chocolate truffles.

The recipe for 20 dark chocolate truffles is

     1 cup cream
     2 cups dark chocolate

1. Complete the recipe for 40 dark truffles

    _____ cups cream

    _____ cups dark chocolate

2. One day, Linda has 8 cups of dark chocolate and plenty of cream.
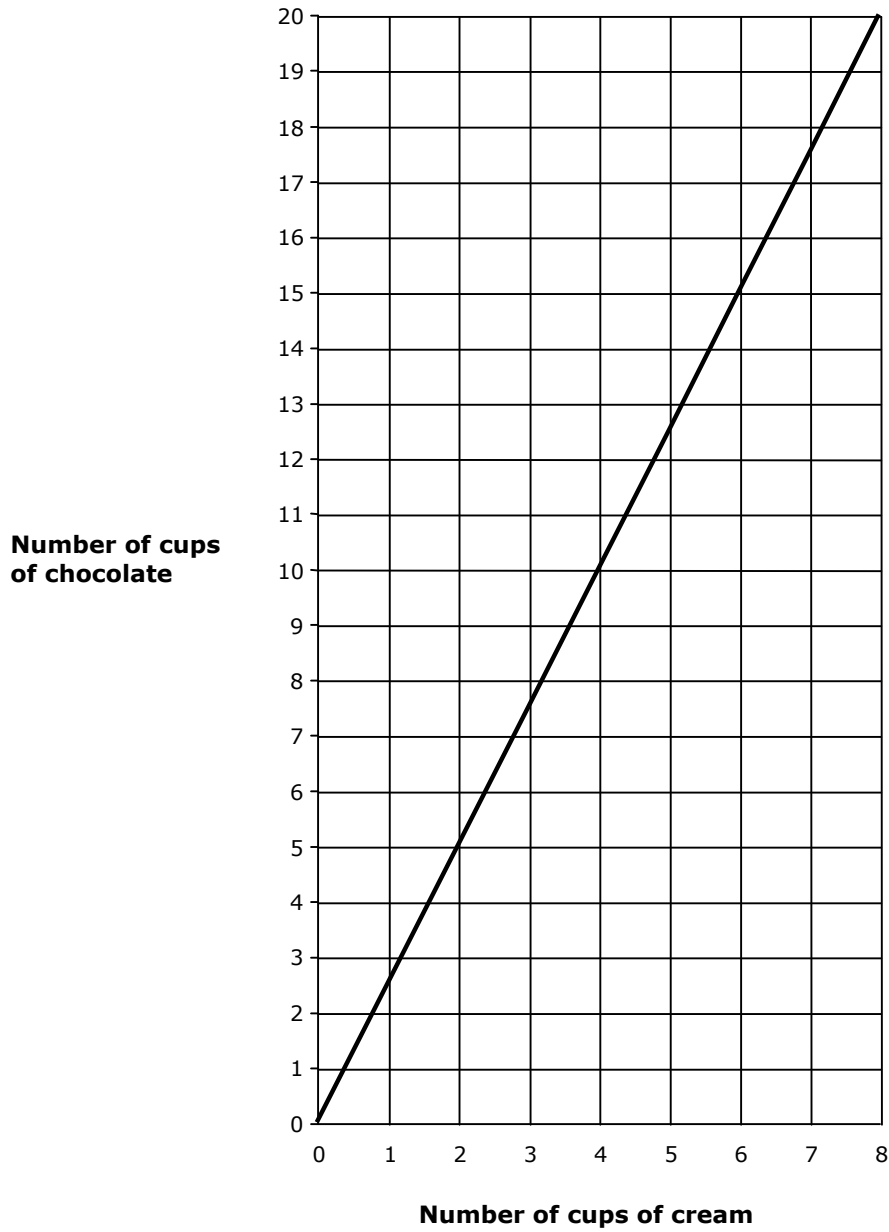
   How many truffles can she make?     _____
   Explain how you figured it out.

_____

_____

3. The recipe for Super Truffles is different. The graph on the next page shows how much cream and chocolate to use.

   How much chocolate does Linda need for two cups of cream?

                                  _____

4. How much cream does she need for 15 cups of chocolate?

                                  _____

Truffles

**Super Truffles**



5. Write a rule that Linda can use to figure out how many cups of chocolate she needs for any number of cups of cream when making Super Truffles.
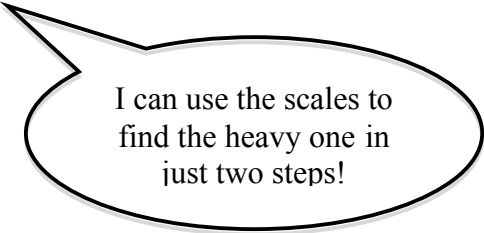
_____

_____

# Boxes

This problem gives you the chance to:
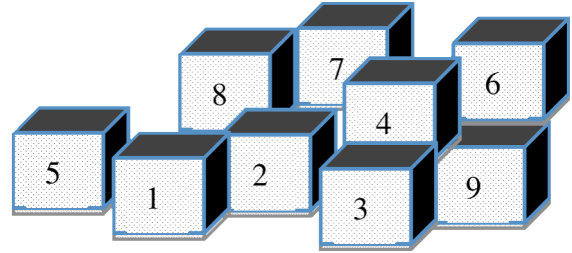- show understanding of a mathematical situation
- explain your reasoning

There are nine small boxes.
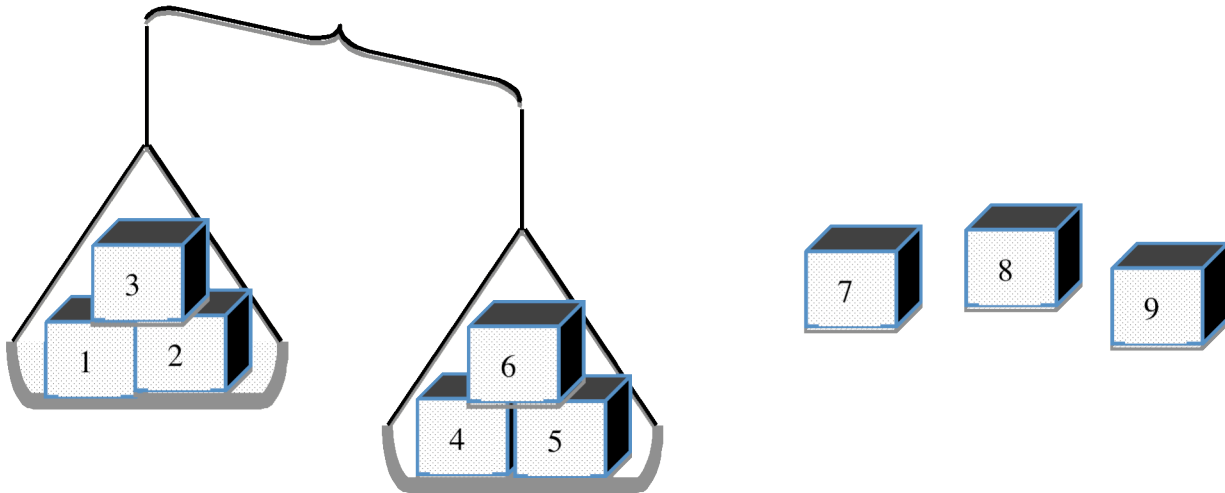They all look exactly the same but one is a bit heavier than the others.

Jake says,

I can use the scales to
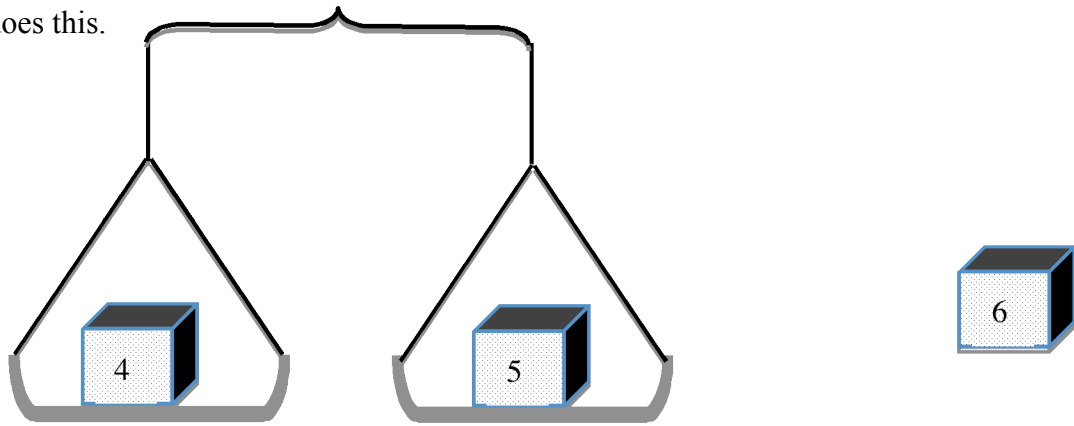find the heavy one in
just two steps!

8  7  6
5  4  9
1  2  3

This is what Jake does first.

3
1  2

6
4  5

7  8  9

1.  Explain what Jake now knows about the heavy box.
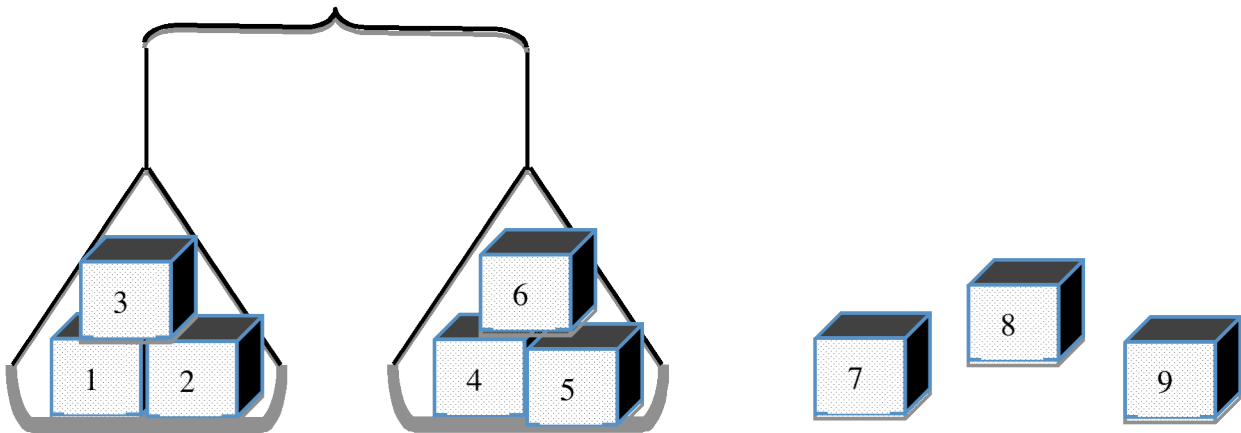
_____

_____

_____

Boxes

Then Jake does this.



2. Which is the heavy box? _____

3. Explain how you know.

_____

_____

_____

4. Suppose the scales showed this the first time instead.



What should Jake do now to find the heavy box?
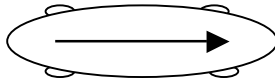
_____

_____

_____

_____

**8**

Boxes

# Skateboarding Tricks

This problem gives you the chance to:
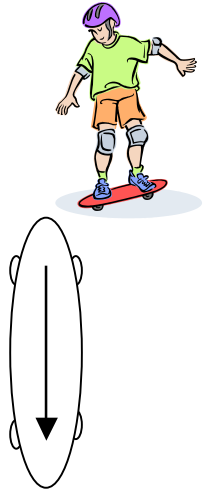• use geometry in everyday life

Tom loves skateboarding. He can do lots of tricks.

1. When he begins his first trick, the skateboard is in this position.

He spins clockwise.

When he has completed the trick, the skateboard is in this position.
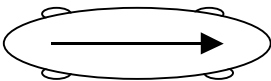
Through how many degrees has the skateboard turned?         _____°

2. Tom can do a second trick. The skateboard does a complete turn.
   Through how many degrees does his skateboard turn?         _____°

3. In his third trick the skateboard makes a 180° turn.
   Draw the end position of Tom's skateboard.

Start position                              End position

4. Tom's fourth trick shows that he can skateboard around
   a square fish pond.
   When he starts at point A, this is the position of his
   skateboard.

   He skateboards in a straight line until he reaches point B.
   He spins clockwise until he faces point C.
   He skateboards in a straight line until he reaches point C.
   He spins clockwise until he faces point D.
   He skateboards in a straight line until he reaches point D.
   He spins clockwise until he faces point A.
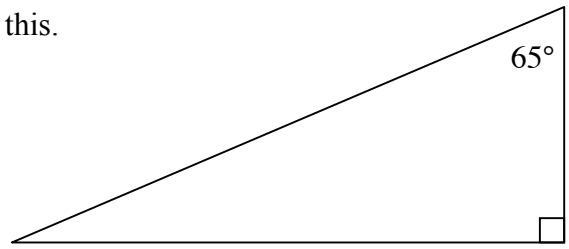   He skateboards in a straight line until he reaches point A.
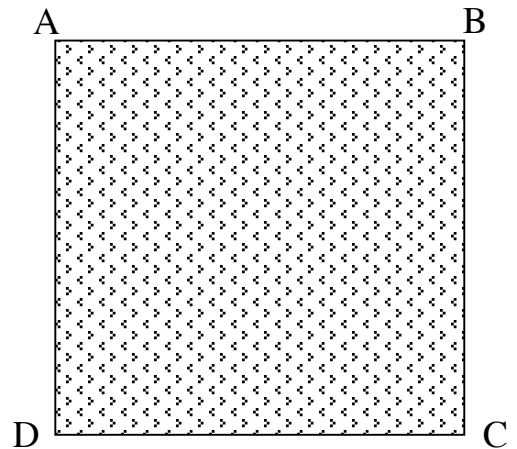
   Through how many degrees has his skateboard turned in all?         _____

Skateboarding

5. Tom's newest trick uses a ramp. The ramp looks like this.

What are the other two angles of Tom's ramp?

_____

Explain how you figured this out.

_____

_____

**6**

# A Board Game

This problem gives you the chance to:
• work with probabilities

Jake and Annia are playing a board game using an ordinary cube numbered 1 to 6.

Players take turns to throw the cube, but only the player with the higher score moves.
The player with the higher score moves the number of places shown on their cube.
If the scores are equal neither player moves.
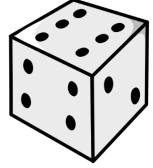
1. On his first throw Jake got a 3.  Annia was the one to move.

   What numbers could she have thrown?
   List all the possible numbers.

   _____

2. On his second throw Jake got a 4.

   What is the probability that Annia was the one to move?

   _____

3. On another throw, after Jake has thrown, the probability that Annia moves is $^2/_3$.

   What number did Jake throw?

   _____

4. Towards the end of the game Annia needs to move two places to win. She must throw exactly 2.

   What would Jake need to throw for Annia to have a chance of winning?
   Explain how you decided.                           _____

   _____

   _____


5. Annia thinks it unfair for Jake to go first each time. She thinks it gives him an advantage.

   Is she correct?              _____
   Explain how you decided.

   _____

   _____

A Board Game

**7**