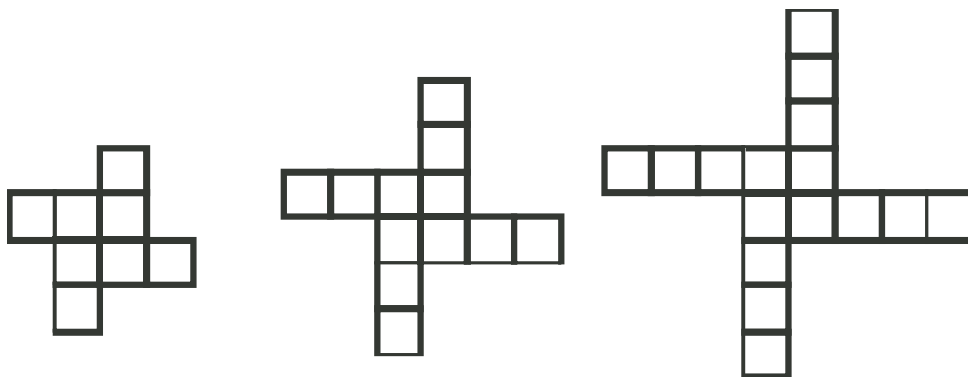


Problem Set B12

Solve each problem. On some problems you will be asked to explain your thinking!

- 1a. Draw the next shape in the pattern.



Without drawing the shapes how many squares will be in the:

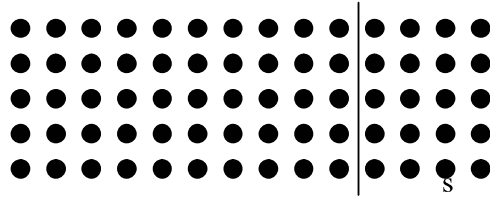
- 1b. 10th shape
 1c. nth shape
 1d. Using the figure explain why the rule for the nth shape works.

- 1e. Fill in the table.

Figure #	Number of Squares in the Shape
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
25	
100	
n	

Problem Set B12-2

2. How many dots are in this figure?

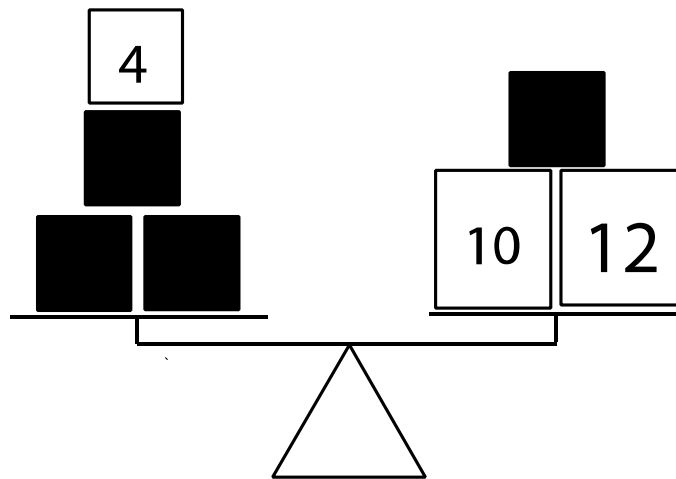


Cindy multiplied 5×14 to find the number of dots in the picture.

Charles multiplied 5×10 and then added it to 5×4 to find the number of dots in the picture.

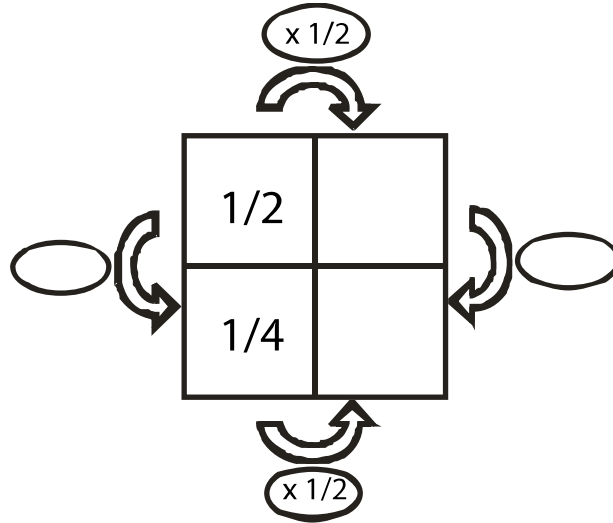
- b. Why do both methods give the same answer?

3. Find the weight of the black square to make the scale balance.



Problem Set B12-3

4. Find the missing numbers and the operations in the ratio box.



5. A loaded trailer truck weighs 26,643 kilograms. When the trailer is empty it weighs 10,547 kilograms. About how much does the load weigh?

- A. 14,000 kilograms
- B. 16,000 kilograms
- C. 18,000 kilograms
- D. 36,000 kilograms

6. Fill in the missing numbers in the pattern and give the rule.

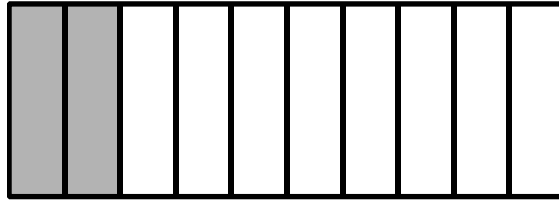
___ 8 ___ 26 ___

Rule _____

7. I have exactly \$10.00 in nickels, dimes, and quarters. If I have the same number nickels, dimes, and quarters, how many of each kind of coin do I have?

Problem Set B12-4

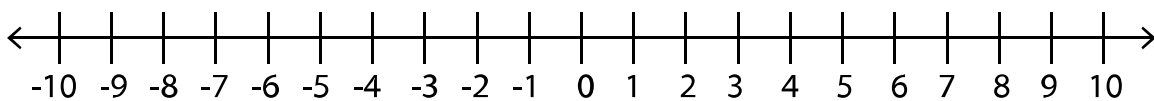
8. Which number represents the shaded part of the figure (TIMSS, 1995)?
- a. 2.8
 - b. 0.5
 - c. 0.2
 - d. 0.02



9. If you could not multiply the two numbers on each side of the equation to show they are equal, how could you convince someone that the following equation is equal?

$$20 \times 16 = 40 \times 8$$

10. List all the pairs of whole numbers that you can multiply together to get 72.
11. The Integer Express is a train that travels back and forth on the number line railroad. The engineer makes the train move to the right by entering a positive number and to the left by entering a negative number. If he started at 0 and pushed -8 and then +5, where would he end up?



- b. The engineer sometimes forgets where he started. He knew he pushed -8 and +5. He ended up at -1. Where did he start?

