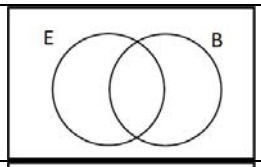
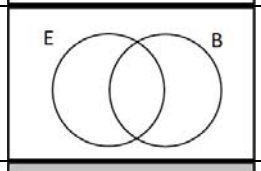
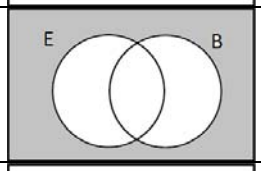
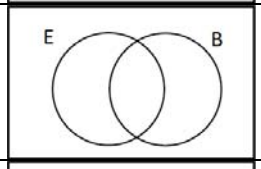
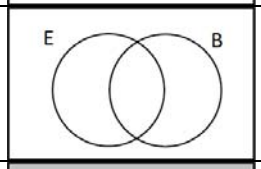
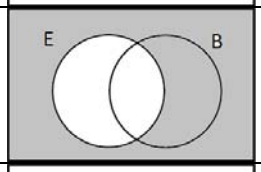
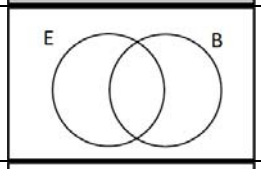
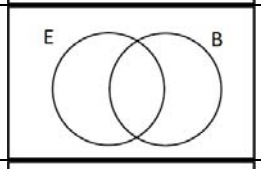
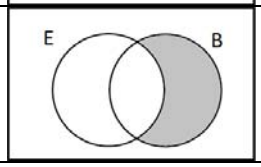
Practice test 1

1. There will be some set problems like these on the test. The test section will be shorter than this.
The universe is things you can write with. The set E is things you can erase, and the set B is things write in black.

Things that write in black and erase			
Things that write in black or erase			
			
	E		
	$\overline{B}$		
			
Things that erase or write in black but not both			
	$E \cap \overline{B}$		
			

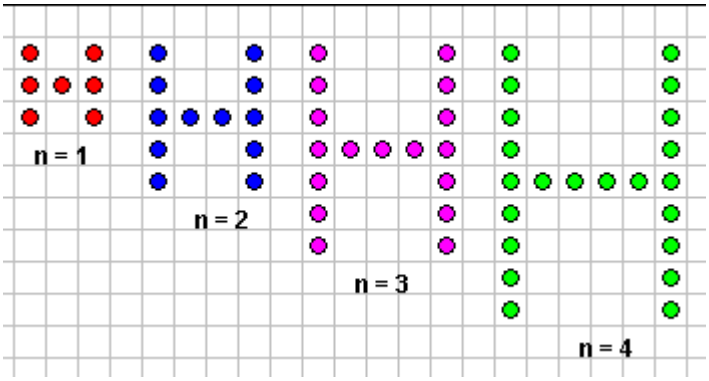
2. There will be 1-2 Venn diagram logic puzzle problems to solve. Try these:

A. There are 18 students in the class
2 students have neither a highlighter nor an eraser on their desk
8 students have a highlighter on their desk
7 students do not have an eraser on their desk
How many students have an eraser but not a highlighter on their desk?

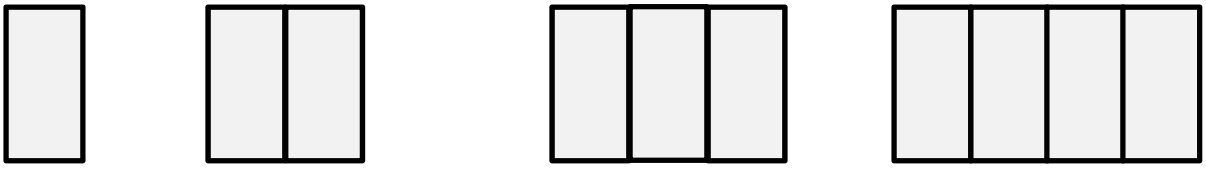
B. 40 students went to the zoo
All of the students went to at least one of the two animal shows (seals or birds)
22 students fed the deer in the petting zoo
4 students saw both shows and fed the deer in the petting zoo.
18 students did not see the seal show
16 students who saw the bird show also fed the deer
Of the students who saw the seal show and did not feed the deer in the petting zoo, two more watched both shows than watched only the seal show.
How many students saw the bird show?

3. Solve this problem with both a diagram and a table:
The restaurant sold some 3 piece and some 5 piece fish and chips baskets.
In all they sold 11 orders and 39 pieces of fish.
How many 3 piece and how many 5 piece baskets did they sell there?

4. Label useful sets in the visual pattern diagram, and use your labelled sets to explain a formula that tells how many dots are in the nth step of the pattern:

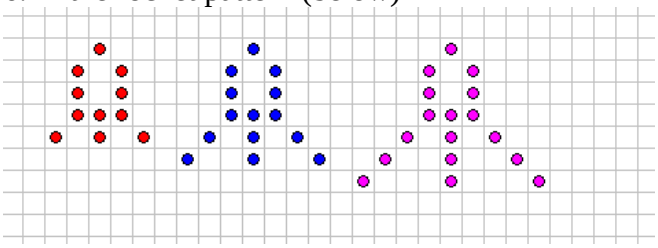


5. Label useful sets in the visual pattern diagram and use your labelled sets to explain a formula that tells how long the perimeter is at the nth step of the pattern. This pattern is made out of dominos: rectangles 1 unit wide and 2 units long:



n=1 n=2 n=3 n=4

6. In the rocket pattern (below)



a. What is the biggest rocket you can make using only 80 dots?

b. Explain how to find the biggest rocket you can make using D dots.

c. What is the smallest rocket that has at least 100 dots?

d. Explain how to find the smallest rocket that has at least N dots.

7. Amy has **beads** in 7 rainbow colors (ROYGBIV) and she has **magnet beads (all the same length)**. She is using them to make necklaces. She made a necklace with one rainbow with magnet ends for a Barbie doll, and she made a necklace with 2 rainbows and magnet ends for another doll.

1 rainbow (9 beads) 

2 rainbows (16 beads) 

a. If Amy made a necklace with 3 rainbows, how many beads would it have?

b. Amy cut a length of bead wire long enough for 57 beads. ***Show*** how to figure out how many complete rainbows can she make on a necklace of this same style.

c. ***Explain*** how to figure out how many complete rainbows can be made on a necklace of this style on a bead wire that is long enough for N beads.

8: Fix the equals signs (while keeping the thinking the same)

a. $86-2=84\div4=21$

b. $\frac{1}{2}\times3\times4=\frac{1}{2}\times12=6\times4=24+16=40$

9. Write down this numerical calculation (for 4x7) using correct equations:

Two 7's are 14, and another 7 is 21 and another 7 makes 28.

10. Use the order of operations correctly to calculate:

a. $12-7+3$ b. $24\div2\div2\times3$ c. $80-5\cdot2^3+20\div5\times2$ d. $2\cdot6^2\div3$