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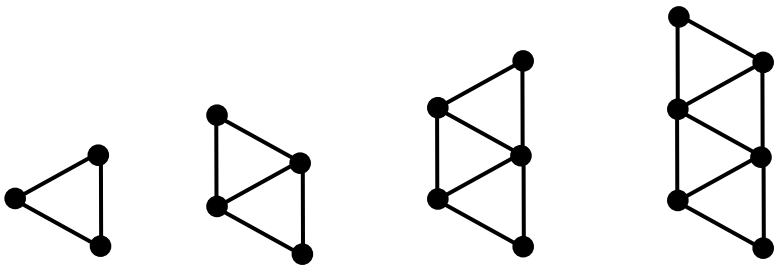
16. Pattern Predictor 4

The shapes below are made with toothpicks and gumdrops. For example, stage 2 has 5 toothpicks and 4 gumdrops.

1. Look at the pattern and then draw stage 5. For later stages, make a drawing if it helps you answer the questions.



stage 1 stage 2 stage 3 stage 4 stage 5

2. How many toothpicks \ are there at stage 5?

3. How many gumdrops ● are there at stage 5?

4. How many toothpicks and gumdrops are there at stage 6?

   • toothpicks: _____

   • gumdrops: _____

5. Complete the table to show the number of toothpicks and gumdrops for stages 1 through 8.

stage	1	2	3	4	5	6	7	8
number of toothpicks		5						
number of gumdrops		4						

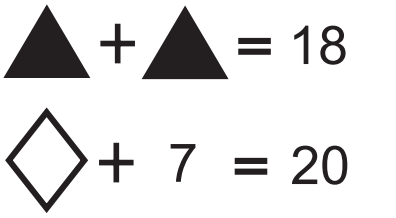
6. How many toothpicks and gumdrops are there at stage 12?

   • toothpicks: _____

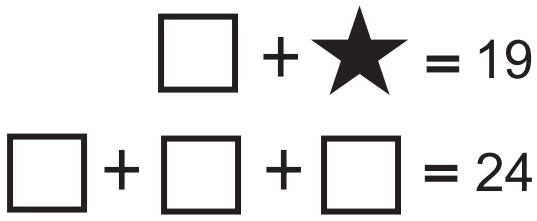
   • gumdrops: _____

2. Equality Explorer 1

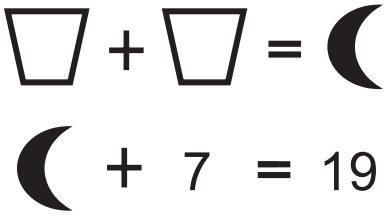
Each 2D shape represents a different whole number. Use the equations to find their value.

1. 

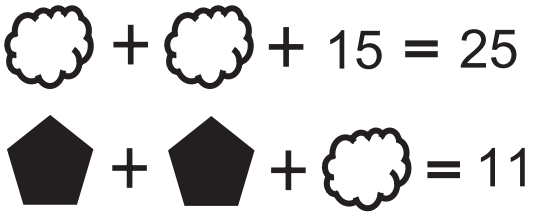
▲ = ___ ◇ = ___

2. 

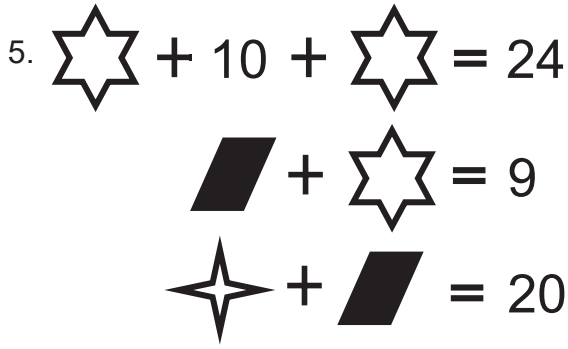
□ = ___ ★ = ___

3. 

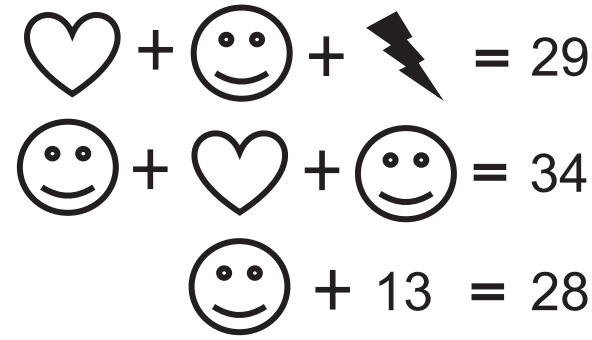
▽ = ___ ☾ = ___

4. 

☁ = ___ ⬟ = ___

5. 

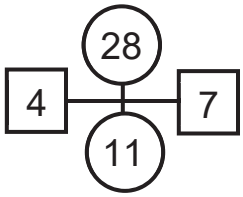
▰ = ___ ☆ = ___ ✦ = ___

6. 

☺ = ___ ♡ = ___ ↯ = ___

14. Number Ninja 3

The top circle's number equals the product of the numbers in the squares: 28 = 4 x 7. The bottom circle's number equals the sum of the numbers in the squares: 11 = 4 + 7.

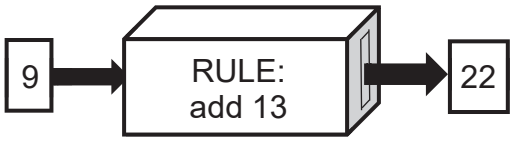


Fill in all missing numbers. When both squares are empty, put the larger of the two missing numbers in the right square.

1. 5 _ 9 _
2. 3 _ 10 _
3. 42 6 _ _
4. _ 8 10 _
5. 15 _ _ 8
6. 40 _ _ 13
7. 12 _ _ 7
8. 8 _ 6 _
9. 75 _ 25 _
10. _ 7 _ 15
11. 36 _ _ 12
12. 60 _ 19 _
13. 48 _ _ 14
14. 49 _ _ 14
15. 63 3 _ _
16. _ 9 17 _
17. 81 _ _ 18
18. 48 _ _ 16
19. 100 _ _ 25
20. 14 _ 15 _

30. Function Finder 6

1. The function machine adds 13. So when you input 9, the output is 22. Use the rule to complete the table.



in	4	9	16	21		54
out	17	22	29		45	

2. Complete the table and state the function machine rule.

a. RULE: _____

in	14	21	29	36		74
out	24	31	39		52	

b. RULE: _____

in	6	13	18	25		57
out	28	35	40		64	

3a. Complete the table.

Spencer's age	5	11	23	35		66
Amanda's age	13	19	31		52	

b. Spencer is 16. How old is Amanda?

c. Amanda is 47. How old is Spencer?

4a. Complete the table.

cost to make cake ($)	6	9	15	22	28	
selling price of cake ($)	11	14	20	27		41

b. It costs $25 to make the cake. What is the selling price of the cake?

c. The selling price of the cake is $17. How much does it cost to make the cake?

5a. Complete the table.

Sammy's situps	20	32	45	57	70	
Sammy's pushups	5	17	30	42		88

b. Sammy does 27 situps. How many pushups does he do?

c. Sammy does 50 pushups. How many situps does he do?