In problems 1-2, after solving each question, add all the digits. (For example, if the answer is 148, then write down the final answer as $1+4+8=13$.)

1. $13+5\times 13-96\div 6$

2. $(11+15)\times((15+21)\div 4-5)$

In problems 3-7, write the decimal part after solving each question. (For example, if the answer is 18.2 or 18.20, then write the final answer as 2. If the answer is 2.54 or 2.054, then write the final answer as 54.)

3.
$$\begin{array}{r} 4.7 \\ +\ 3.76 \\ \hline \end{array}$$

4. $2.81+14.6$

5.
$$\begin{array}{r} 8.2 \\ -\ 2.64 \\ \hline \end{array}$$

6. $27.8-2.69$

7.
$$\begin{array}{r} 3.54 \\ \times\ 2.5 \\ \hline \end{array}$$

In problems 8-10, write the greatest common factor for each set of numbers.

8.

    18, 24

              GCF : _____

9.

    39, 104

              GCF : _____

10.

    56, 96, 136

              GCF : _____

In problems 11-13, write the least common multiple for each set of numbers.

11.

    42, 56

              LCM : _____

12.

    54, 96

              LCM : _____

13.

    12, 15, 42

              LCM : _____

In problems 14-16, reduce each fraction into its simplest form. Then add both digits of the numerator and the denominator. (For example, if the answer is $\dfrac{2}{5}$, then write the final answer as $2+5=7$.)

14. $\dfrac{27}{81}$

15. $\dfrac{60}{84}$

16. $\dfrac{68}{119}$

In problems 17-25, solve the calculation into its simplest form as a proper fraction or a mixed number. Write the numerator of the fraction as your answer. (For example, if the answer is $3\dfrac{10}{6}$, make $4\dfrac{2}{3}$ and write the final answer as 2.)

17. $6\dfrac{1}{9} + \left(4 - 1\dfrac{5}{9}\right)$

18. $8 - 3\dfrac{5}{13} + \dfrac{11}{13}$

19. $3\dfrac{7}{12} + 1\dfrac{8}{15}$

20. $2\dfrac{11}{12} + 6\dfrac{7}{18}$

21. $7\dfrac{2}{9} - 5\dfrac{4}{15}$

22. $2\dfrac{1}{10} \times 4\dfrac{1}{6}$

23. $2\dfrac{11}{12} \div 3\dfrac{1}{16}$

24. $\dfrac{3}{8} \times \dfrac{4}{9} \div 1.2$

25. $1\dfrac{3}{4} \div 2.1 \div \dfrac{8}{15}$

In problem 26, calculate the quotient up to the hundredths place. Then, add both the quotient and the remainder and write only the decimal part. (For example, if the quotient is 2.56 and the remainder is 0.004, make
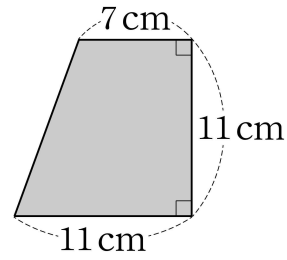
$2.56 + 0.004 = 2.564$, and write the final answer as 564.)

26.

$$8.1 \overline{)4\ 2\ .\ 8}$$

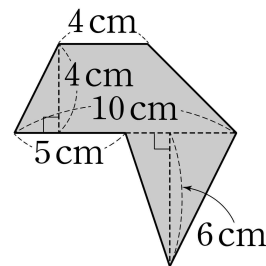In problems 27-28, solve each equation.

27. $(x \times 1.6) \div 2\dfrac{2}{15} = 3$

28. $\left(x - \dfrac{1}{3}\right) \div 3 = 2\dfrac{2}{9}$

29. Find the area of the figure.

7 cm
11 cm
11 cm

$\boxed{}$ cm^2

30. Find the area of the shaded section.

4 cm
4 cm
10 cm
5 cm
6 cm

$\boxed{}$ cm^2

31. Joey has 36 bottles. His sister has half as many bottles as Joey, and his brother has half as many as his sister. How many bottles do they have altogether?

_____ bottles

32. Andrew, Becky, and Charlie had the same number of stickers. Andrew gave 6 stickers to Charlie, and Becky gave 3 stickers to Charlie. Now Charlie has twice as many as Andrew. How many stickers do they have altogether?

_____ stickers

33. A fishing rod is made by connecting three smaller rods. The lengths of the rods are $3\dfrac{7}{12}$ feet, $3\dfrac{5}{12}$ feet, and $2\dfrac{7}{12}$ feet. How long is the fishing rod?

Write A + B + C if the mixed number $A\dfrac{B}{C}$ is the length of the fishing rod in simplest form.

_____

34. Ellie is going to fix a broken photo frame. Its length and width are 0.72 m and 0.55 m. She needs enough tape to cover the entire frame border exactly. What is the length of the required tape in centimeters? (Note: 1 m = 100 cm)

_____ cm

35. Mike put 0.495 L of water in a bottle. He dropped the bottle and spilled some water. Now, 0.35 L of water is in the bottle. How much water did he spill? Write the decimal part. (For example, if the answer is 1.23 or 1.230, then write the final answer as 23. If the answer is 4.56 or 4.056, then write the final answer as 56.)

_____

36. Lea has lots of identical rectangle cards that are $16\,\text{cm}$ by $20\,\text{cm}$. She is going to put the cards side by side to make a square. What is the least number of cards she must use?

_____ cards

37. Joey's dad had a 6.25 meter log. He cut off 2.5 meters. How long is the remaining part of the log? Write the decimal part of the answer.

_____

38. Jack has three jugs. They hold $2\frac{1}{3}$ L, $1\frac{2}{5}$ L, and $1\frac{3}{5}$ L of water. Kate is allowed to take only two jugs. What is the greatest possible difference between Kate's water and Jack's water? Write A + B + C if the mixed number $A\frac{B}{C}$ of the simplest form is the answer.

_____

39. Cindy has a rectangular piece of paper of with an area of $1200 \, \text{cm}^2$. She cut the paper into four rectangles by making cuts at $\frac{2}{5}$ of the length and $\frac{1}{4}$ of the width. What is the area of the largest rectangle?

_____ cm^2

40. Leon had a large bottle containing 1.955 L water. He used the water to fill smaller bottles. Each smaller bottle contains 0.45 L. After completely filling as many smaller bottles as possible, how many liters of water were left in the large bottle? Write the decimal part of the answer.

_____ L

41. Balance 1 and Balance 2 are level. How many ○ have to be put at A to make Balance 3 level? [2.3 points]

(Balance 1)   (Balance 2)

(Balance 3)
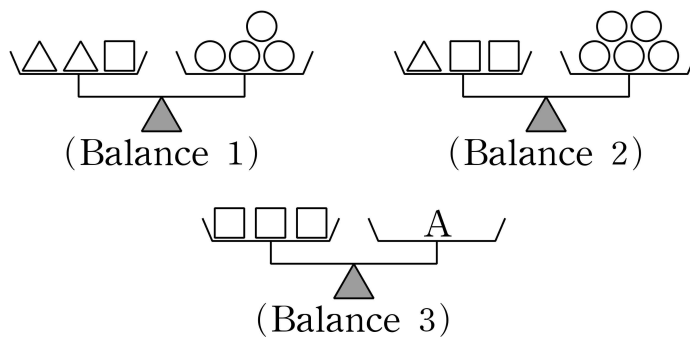
Answer : _____

42. Among all 3-digit numbers that contain only one odd digit, how many are even numbers? [2.3 points]
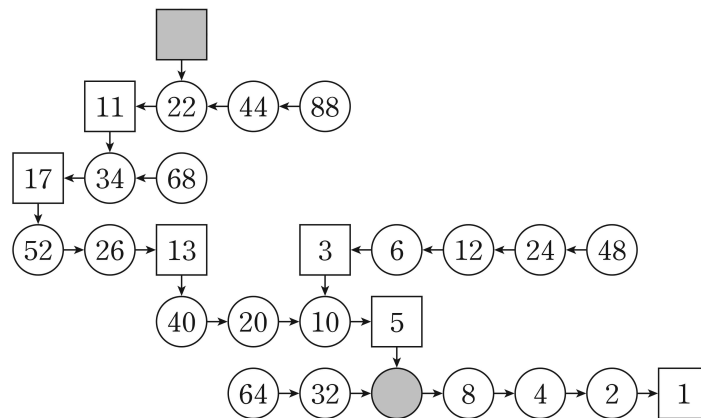
Answer : _____

43. You are going to complete the following number sentence. When you are doing this, each symbol +, ×, and ÷ can be used only once. Among all the possible combinations, what is the greatest value that you can get? [3.3 points]

$$8 \;\square\; 6 \;\square\; 4 \;\square\; 2$$

Answer : _____

44. The numbers in the figure below arrive at the number 1 along arrows following a certain rule. Find the product of the two numbers in the shaded empty places.

[3.3 points]

▢ → 22 ← 44 ← 88, 22 → 11
11 → 17 ← 34 ← 68, 34 → 17
17 → 52 → 26 → 13
13 → 40 → 20 → 10 → 5
3 ← 6 ← 12 ← 24 ← 48, 3 → (to 10 area)
5 → ● ← 32 ← 64, ● → 8 → 4 → 2 → 1

Answer : _____

45. Alice, Bob, and Charlie shot 3 arrows each and they all hit the target. Each person had a different odd-number score. Alice had the highest score and Charlie had the lowest score. What is Bob's score? [3.3 points]
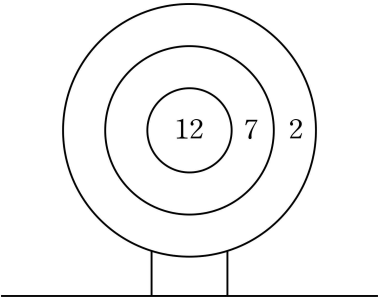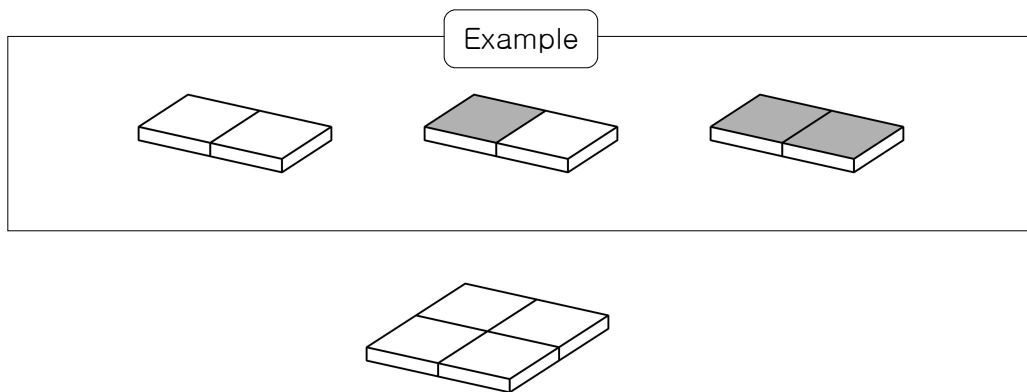

Answer : _____

46. Olivia created the shape below using a certain method. At step 3 she had a complete rectangle with 6 squares. At step 8 she had a complete rectangle with 36 squares total. The rectangle at step 8 has 20 squares on the boundary. She can make a complete rectangle again at step 20. At that step, how many squares are on the boundary? [3.3 points]
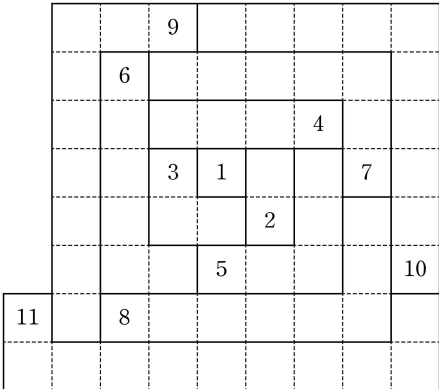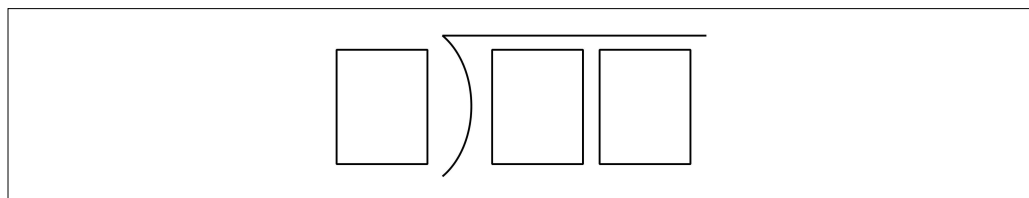

Answer : _____

47. The example shows that there are 3 ways to color a pad that is made from two square plates, using only black and white colors. Note that ▮ is the same as ▯ when it is rotated. Find the number of ways to color a pad that is made from 2 by 2 square plates, using only black and white. [4.3 points]


Example

Answer : _____

48. You are going to write division problems using all three numbers. How many division problems can you create that have a remainder of 0 after the calculation? [4.3 points]
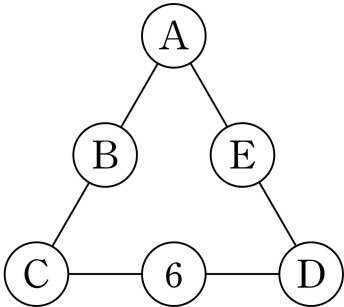
Answer： _____

49. The following shape is made by gluing cubes together, and it looks identical when seen from all six directions. If you have 500 cubes of the same size, how many copies of this shape can you make in total? [4.3 points]
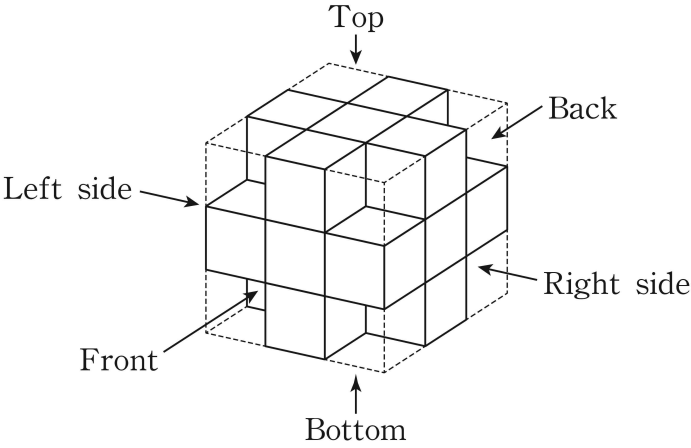
Answer : ＿＿＿＿＿＿＿＿

50. Write five different 1-digit numbers so that each side of the triangle has a sum of 20. What is the greatest product of the three numbers on one line?　[4.3 points]

Answer : ＿＿＿＿＿＿＿＿