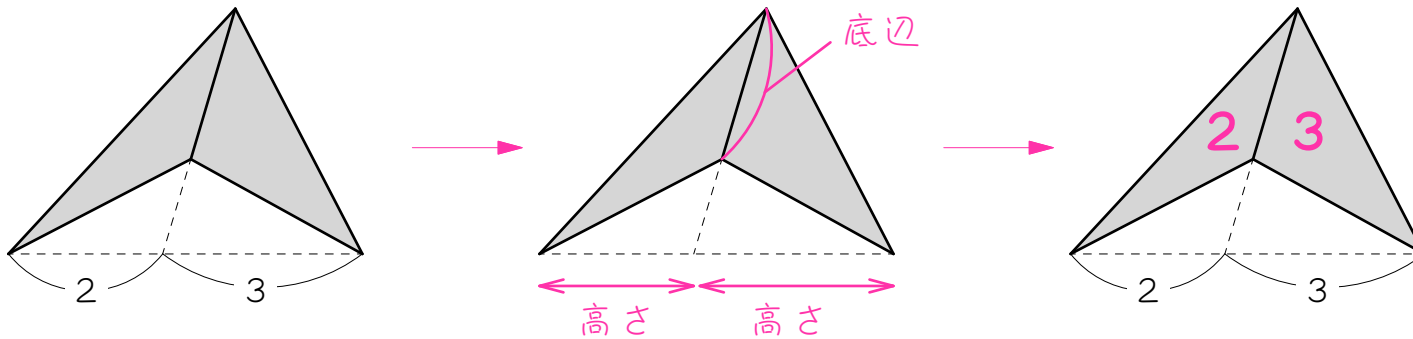


ステップ1 ブーメラン

1

例にならって、2つの三角形の面積比をかきこみなさい。

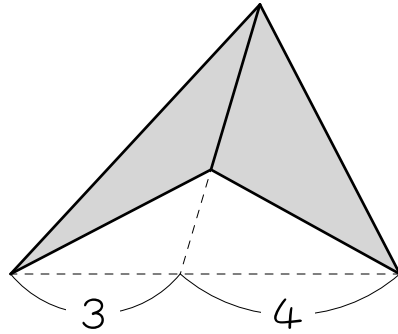
例



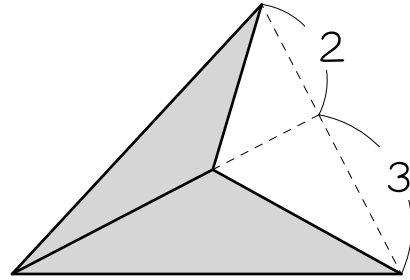
2つの三角形の底辺
と高さを図のように
考えると、

底辺が等しいので、
面積の比は、高さの
比で決まります。

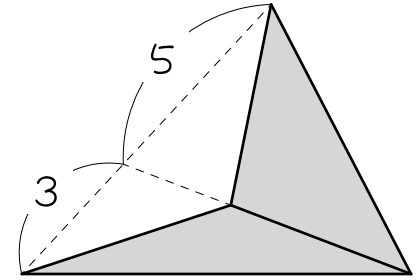
(1)



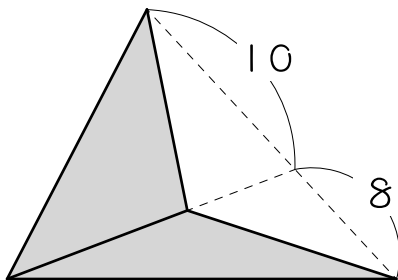
(2)



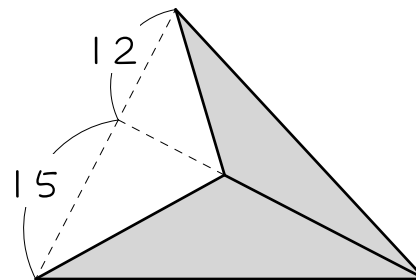
(3)



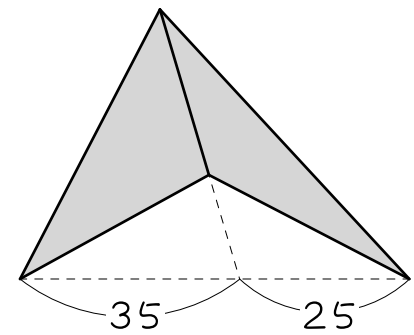
(4)



(5)



(6)

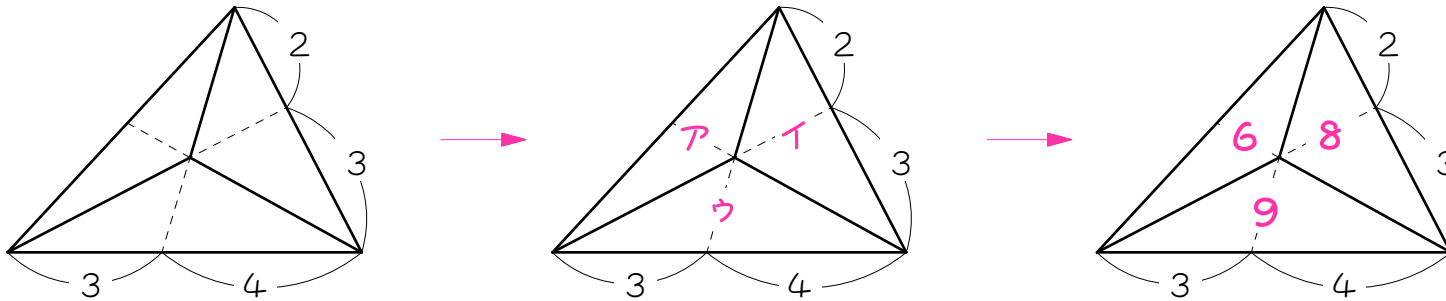


ステップ2 ベンツ切り - ア・イ・ウとおいて連比

2

例にならって、3つの三角形の面積比をかきこみなさい。

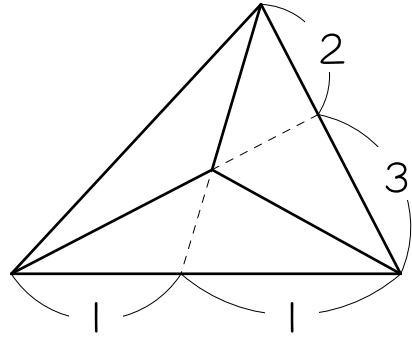
例



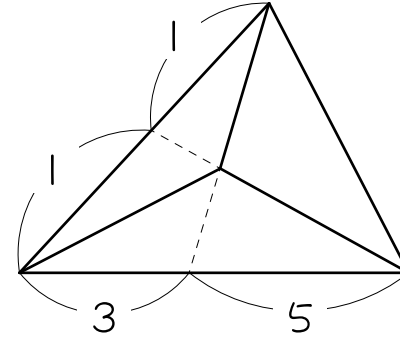
3つの三角形
をア、イ、ウ
とおき、連比

ア	イ	ウ
3	4	
2	3	
6	8	9

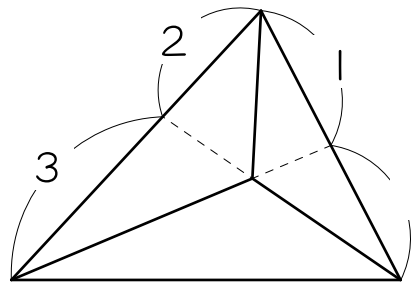
(1)



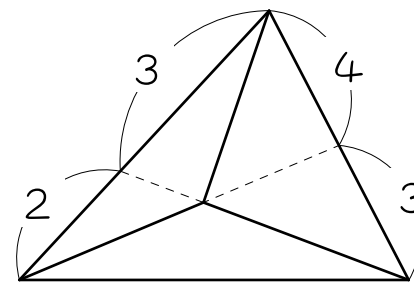
(2)



(3)



(4)

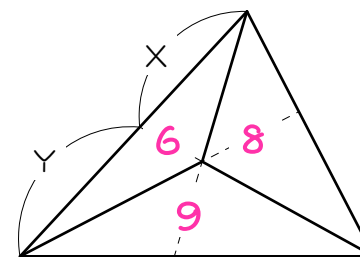
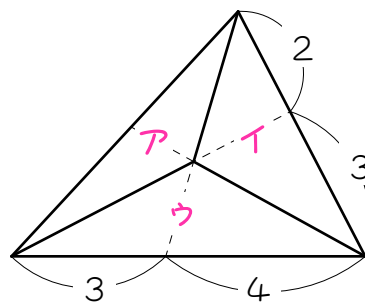
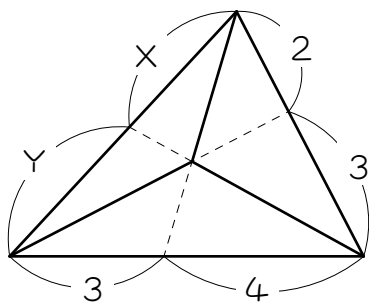


ステップ3 面積比から長さの比を求める①

3

X : Y を求めなさい。

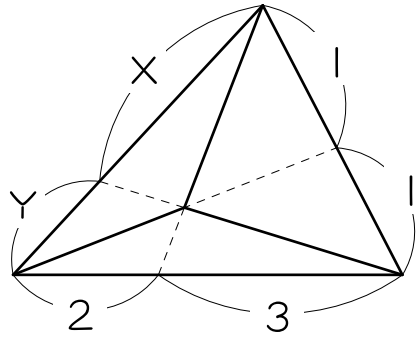
例



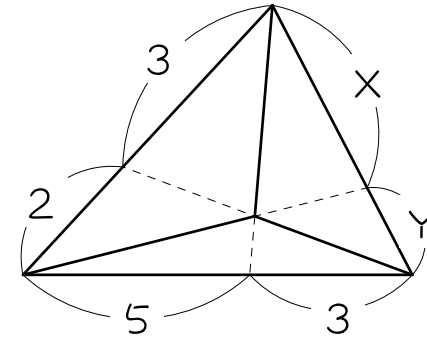
$$\begin{array}{r}
 \text{ア} \quad \text{イ} \quad \text{ウ} \\
 3 : 4 \\
 2 : \quad 3 \\
 \hline
 6 : 8 : 9
 \end{array}$$

図より、
 $X : Y = \underline{8 : 9}$

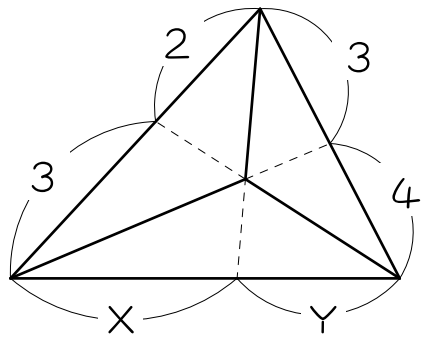
(1)



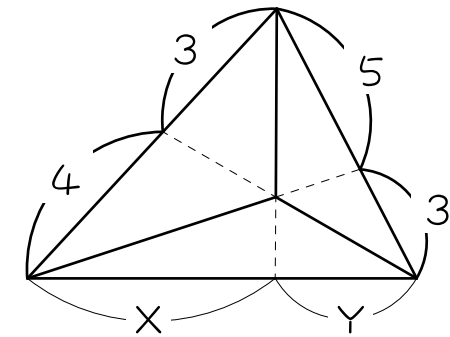
(2)



(3)



(4)



ステップ4 面積比から長さの比を求める②

4

図の三角形ABCにおいて、三角形ABG : 三角形BCG : 三角形CAG = 6 : 9 : 8です。
このとき、() にあてはまる記号・数をかきなさい。

(1) $AG : GD = \text{三角形ABG} : \text{三角形()}$

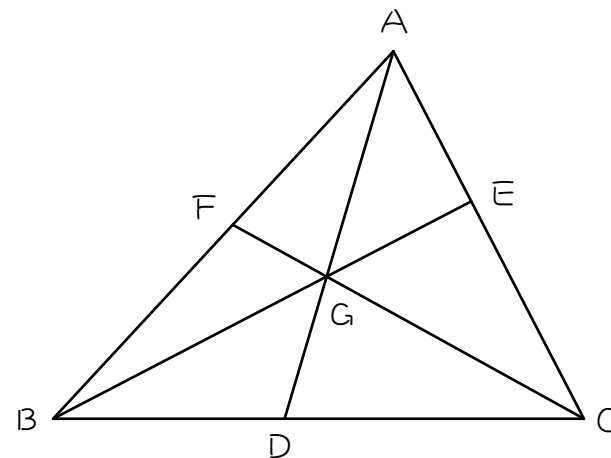
(2) $AG : GD = \text{三角形CAG} : \text{三角形()}$

(3) (1)と(2)より、

$$AG : GD = \text{四角形ABGC} : \text{三角形()}$$

$$= \{ () + () \} : ()$$

$$= () : ()$$



5

図の三角形ABCにおいて、三角形ABG : 三角形BCG : 三角形CAG = 3 : 4 : 5です。
このとき、() にあてはまる記号・数をかきなさい。

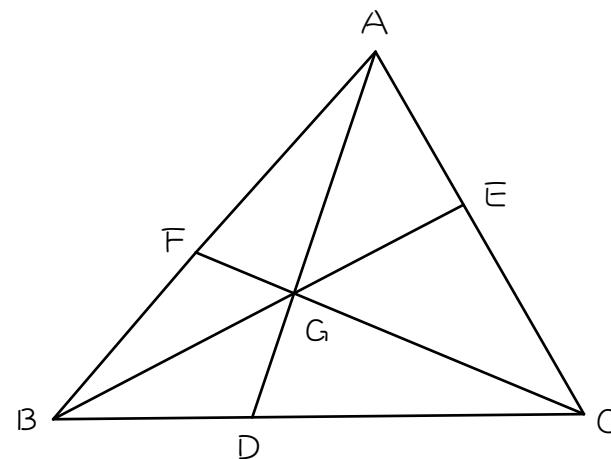
(1) ① $AG : GD = \text{三角形} ABG : \text{三角形} (\quad)$

② $AG : GD = \text{三角形} ACG : \text{三角形} (\quad)$

③ ①と②より、

$$AG : GD = \text{四角形} (\quad) : \text{三角形} (\quad)$$

$$= (\quad) : (\quad)$$

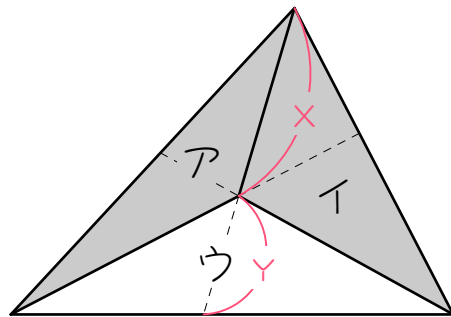


(2) $BG : GE = \text{四角形} (\quad) : \text{三角形} (\quad) = (\quad) : (\quad)$

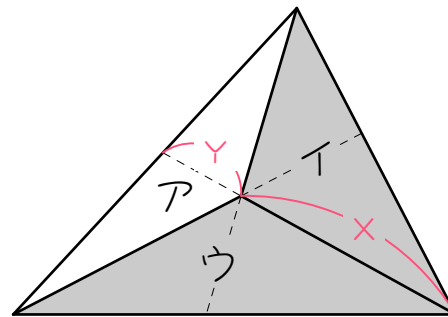
(3) $CG : GF = \text{四角形} (\quad) : \text{三角形} (\quad) = (\quad) : (\quad)$

ベンツ切りのポイント

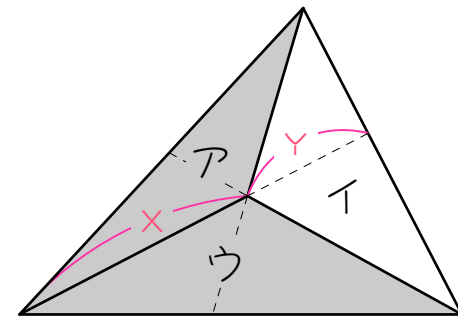
面積比から、中の長さの比を簡単に求める方法



$$X : Y = (A + I) : U$$



$$X : Y = (I + U) : A$$



$$X : Y = (U + A) : I$$

6

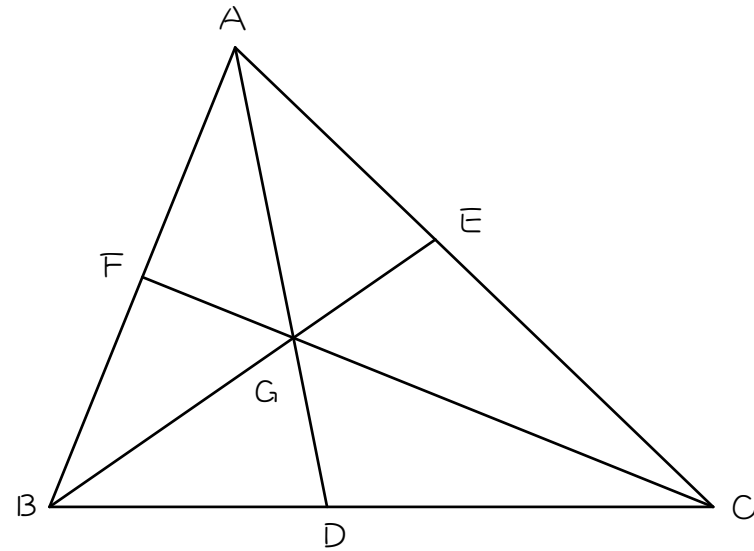
図の三角形 ABC において、 $AF : FB = 4 : 3$ 、 $BD : DC = 2 : 3$ のとき、次の比を求めなさい。

(1) $AE : EC$

(2) $AG : GD$

(3) $BG : GE$

(4) $CG : GF$



7

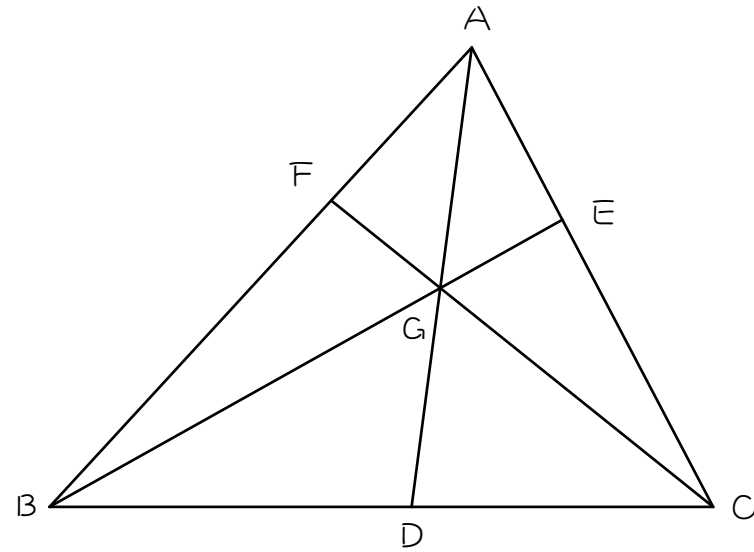
図の三角形 ABC において、 $AF : FB = 1 : 2$ 、 $AE : EC = 3 : 5$ のとき、次の比を求めなさい。

(1) $BD : DC$

(2) $AG : GD$

(3) $BG : GE$

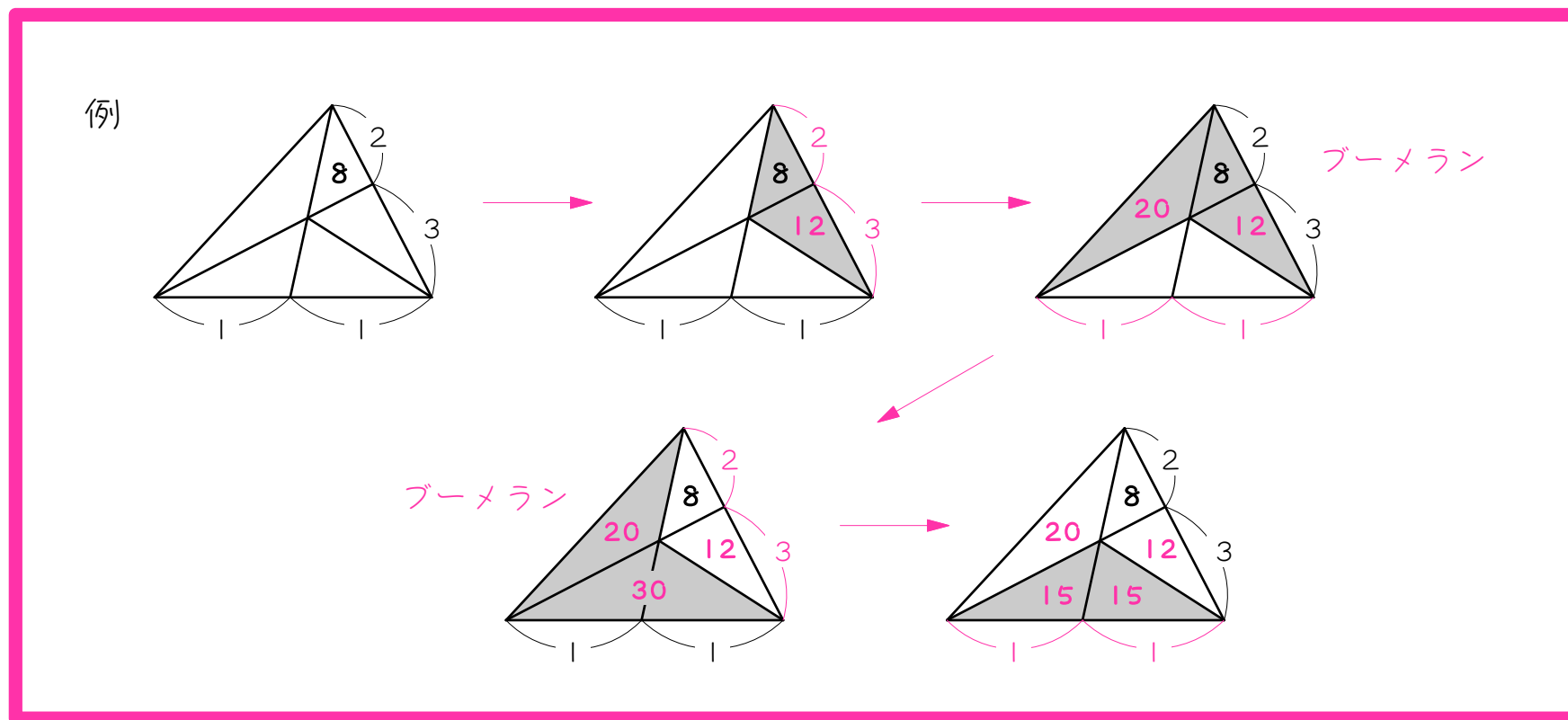
(4) $CG : GF$



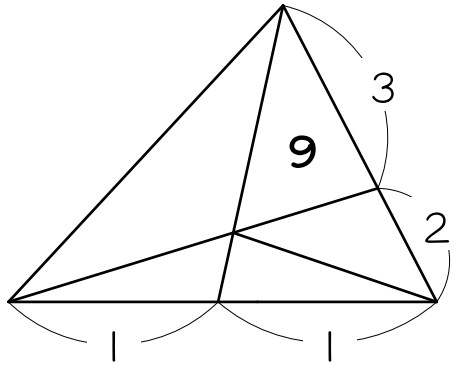
ステップ4 面積を求める

8

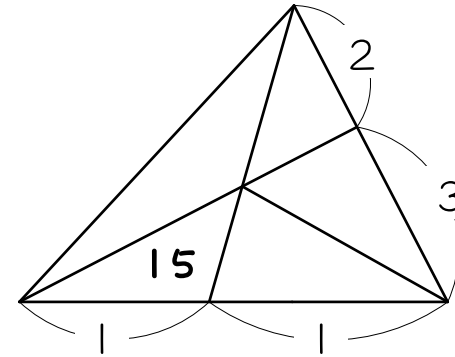
例にならって、各部分の面積をかきこみなさい。



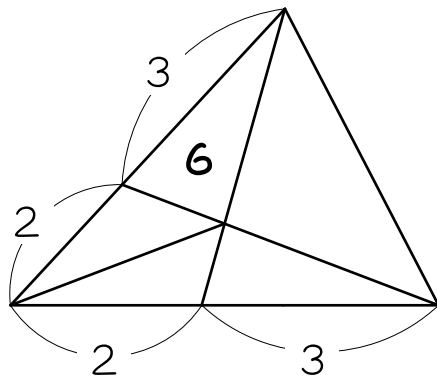
(1)



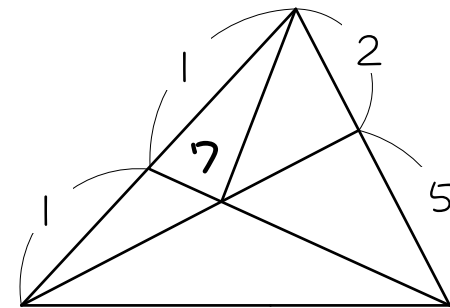
(2)



(3)



(4)

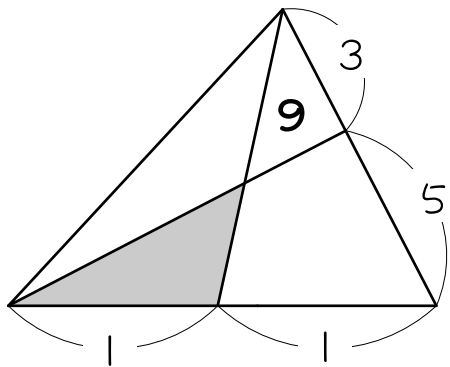


ステップ5 補助線を引く - ベンツ切りにする

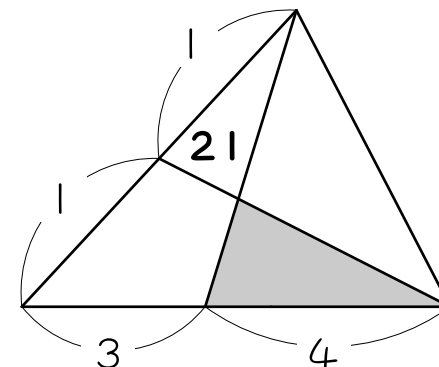
9

色のついた図形の面積を求めなさい (単位不要)。

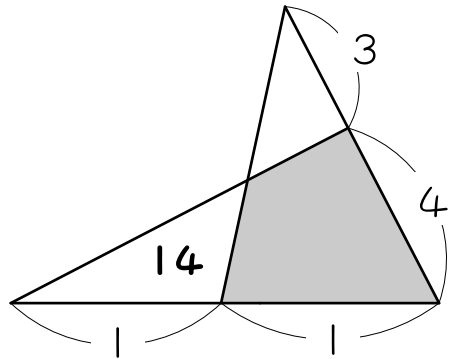
(1)



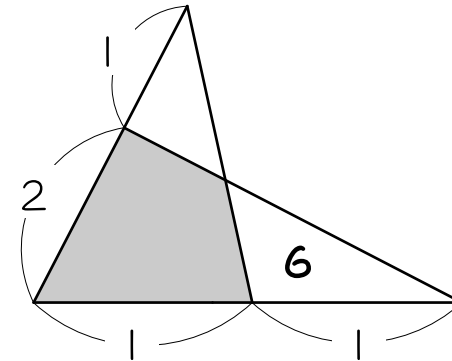
(2)



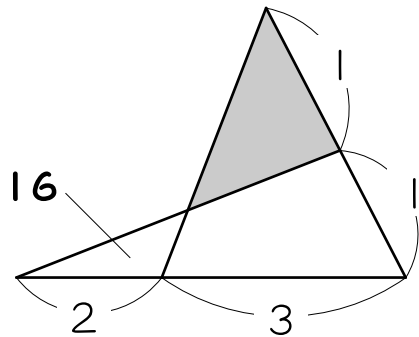
(3)



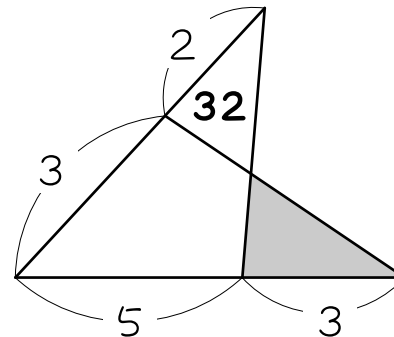
(4)



(5)



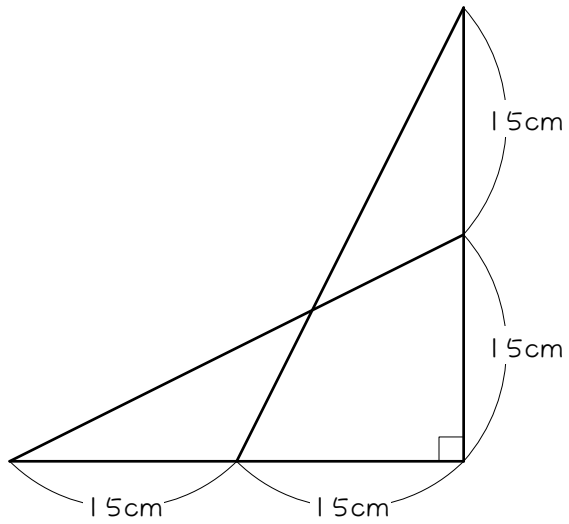
(6)



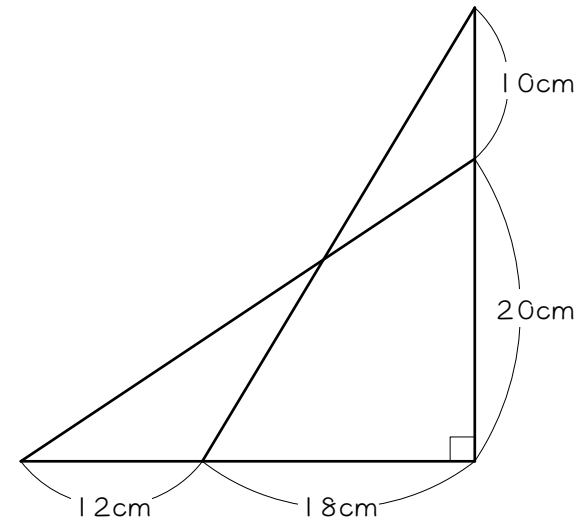
10

図のように、2個の直角三角形を組み合わせました。重なった部分の面積を求めなさい。

(1)



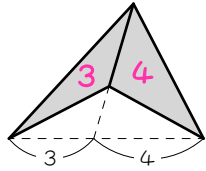
(2)☆



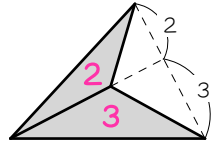
■ 解答 ■

1

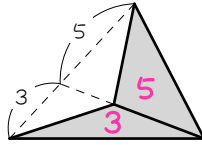
(1)



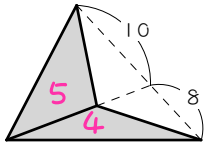
(2)



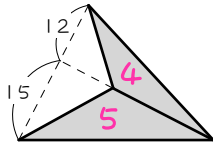
(3)



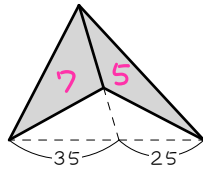
(4)



(5)

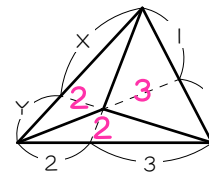


(6)

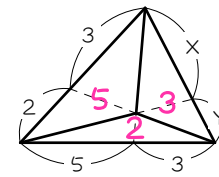


3

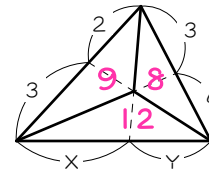
(1) 3 : 2



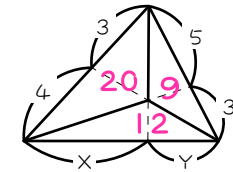
(2) 5 : 2



(3) 9 : 8

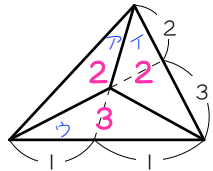


(4) 20 : 9



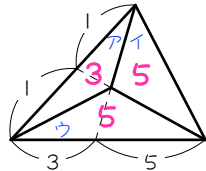
2

(1)



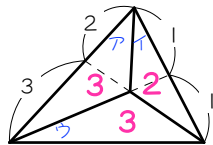
$$\begin{array}{r} \text{ア} \quad \text{イ} \quad \text{ウ} \\ 1 : 1 \\ \hline 2 : 2 : 3 \end{array}$$

(2)



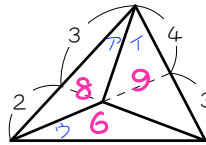
$$\begin{array}{r} \text{ア} \quad \text{イ} \quad \text{ウ} \\ 3 : 5 \\ \hline 1 : 1 \\ \hline 3 : 5 : 5 \end{array}$$

(3)



$$\begin{array}{r} \text{ア} \quad \text{イ} \quad \text{ウ} \\ 1 : 1 \\ \hline 2 : 3 \\ \hline 3 : 2 : 3 \end{array}$$

(4)



$$\begin{array}{r} \text{ア} \quad \text{イ} \quad \text{ウ} \\ 4 : 3 \\ \hline 3 : 2 \\ \hline 8 : 9 : 6 \end{array}$$

4

(1) BGD (2) CGD (3) BGC、6、8、9、14、9
※記号の順番はかわってもかまいません。

5

(1) ① BGD ② CGD ③ ABGC、BGC、2、1
(2) ABCG、AGC、7、5
(3) ACBG、AGB、3、1
※記号の順番はかわってもかまいません。

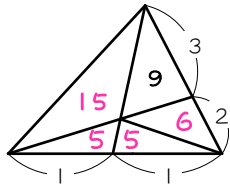
6

(1) 8 : 9 (2) 20 : 9 (3) 17 : 12 (4) 21 : 8

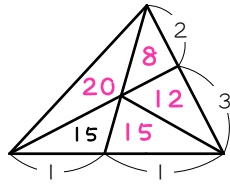
7

(1) 6 : 5 (2) 11 : 10 (3) 16 : 5 (4) 5 : 2

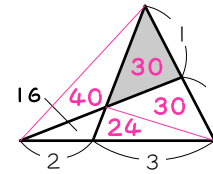
8 (1)



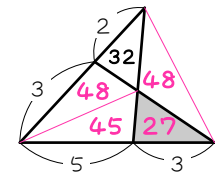
(2)



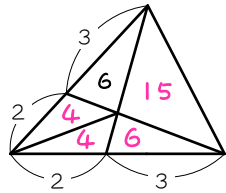
(5) 30



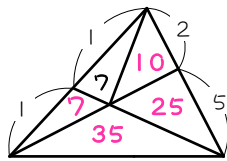
(6) 27



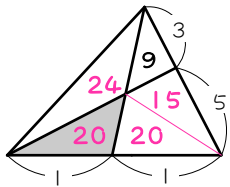
(3)



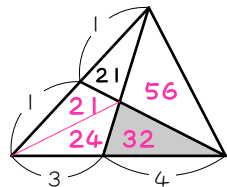
(4)



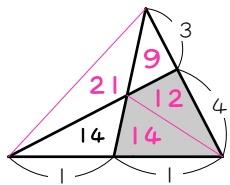
9 (1) 20



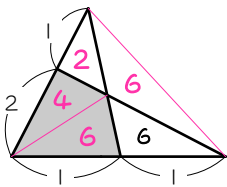
(2) 32



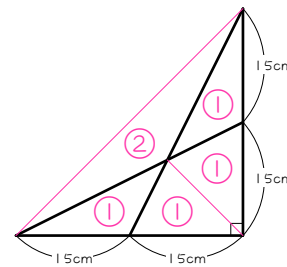
(3) 26



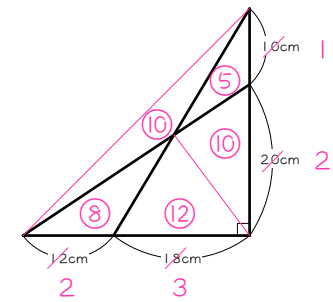
(4) 10



10 (1)



(2)



$$30 \times 15 \div 2 = 225(\text{cm}^2)$$

$$\textcircled{3} = 225$$

$$\textcircled{1} = 75$$

$$\textcircled{2} = 150(\text{cm}^2)$$

$$30 \times 20 \div 2 = 300(\text{cm}^2)$$

$$\textcircled{30} = 300$$

$$\textcircled{1} = 10$$

$$\textcircled{22} = 220(\text{cm}^2)$$