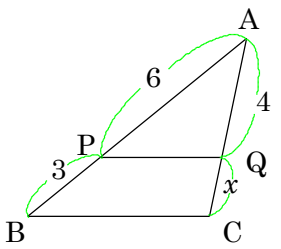
数学A　三角形と線分の比　課題

（　　）年（　　）組（　　）番（　　）

1. PQ // BC のとき，x の値を求めなさい。
Find the value of x when PQ and BC are parallel.

例題

①



AP : PB ＝ AQ : QC

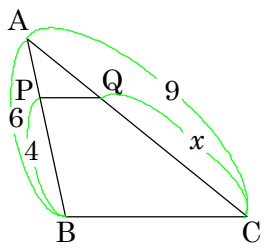
6 : 3 ＝ 4 : x

6 × x ＝ 3 × 4

6 x ＝ 12

x ＝ 2

②



AB : PB ＝ AC : QC

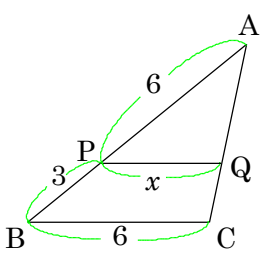
6 : 4 ＝ 9 : x

6 × x ＝ 4 × 9

6 x ＝ 36

x ＝ 6

③



AP : PQ ＝ AB : BC

6 : x ＝ 9 : 6

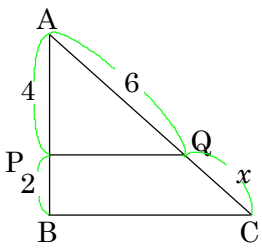
9 × x ＝ 6 × 6

9 x ＝ 36

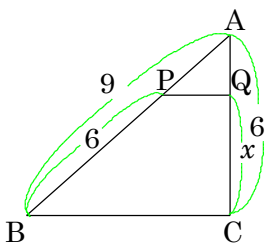
x ＝ 4

問題

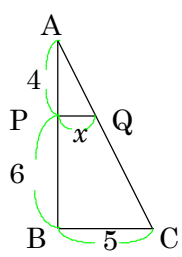
①



②



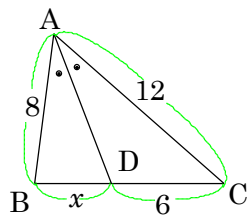
③



2. AD が∠A の 2 等分線のとき，BD の長さ x を求めよ。
Find the size x of BD when AD is the bisector of ∠A.

例題

①



BD : DC ＝ AB : AC

x : 6 ＝ 8 : 12

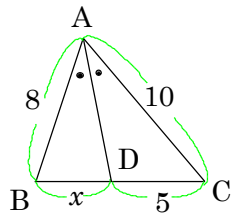
12 × x ＝ 6 × 8

12 x ＝ 48

x ＝ 4

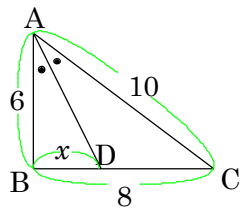
問題

①



例題

②



BD : DC ＝ AB : AC

x : (8 − x) ＝ 6 : 10

10 × x ＝ 6 × (8 − x)

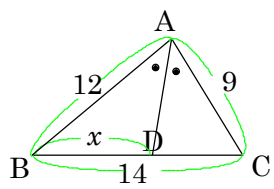
10 x ＝ 48 − 6 x

16 x ＝ 48

x ＝ 3

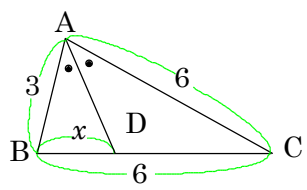
問題

②



問題

③



数学A　三角形と線分の比 2　課題

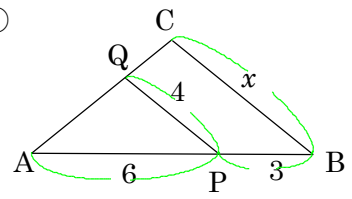
(　　)年(　　)組(　　)番(　　)

1. PQ // BC のとき，x の値を求めなさい。

Find the value of x when PQ and BC are parallel.

例題

①



AP : PQ ＝ AB : BC

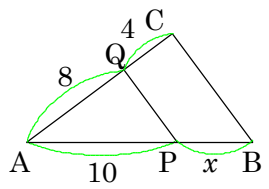
6 : 4 ＝ 9 : x

6 × x ＝ 4 × 9

6 x ＝ 36

x ＝ 6

②



AP : PB ＝ AQ : QC

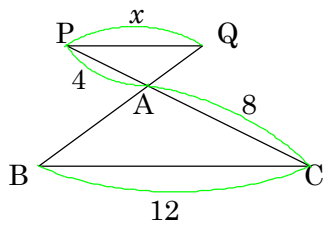
10 : x ＝ 8 : 4

8 × x ＝ 10 × 4

8 x ＝ 40

x ＝ 5

③



AP : PQ ＝ AC : BC

4 : x ＝ 8 : 12

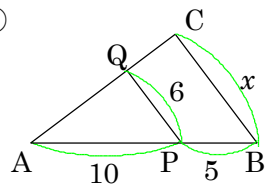
8 × x ＝ 4 × 12

8 x ＝ 48

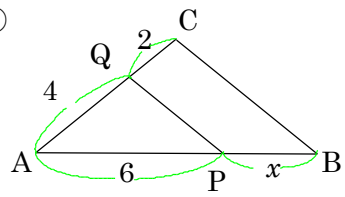
x ＝ 6

問題

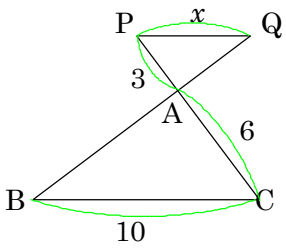
①



②



③

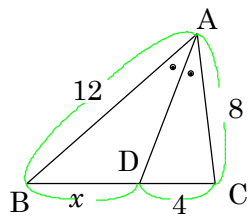


2. AD が∠A の 2 等分線のとき，BD の長さ x を求めよ。

Find the size x of BD when AD is the bisector of ∠A.

例題

①



BD : DC ＝ AB : AC

x : 4 ＝ 12 : 8

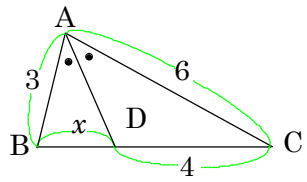
8 × x ＝ 4 × 12

8 x ＝ 48

x ＝ 6

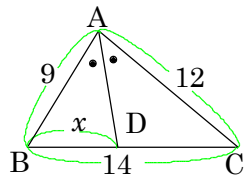
問題

①



例題

②



BD : DC ＝ AB : AC

x : (14 − x) ＝ 9 : 12

12 × x ＝ 9 × (14 − x)

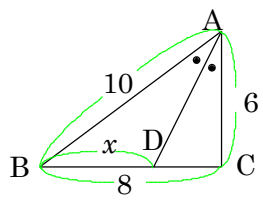
12 x ＝ 126 − 9 x

21 x ＝ 126

x ＝ 6

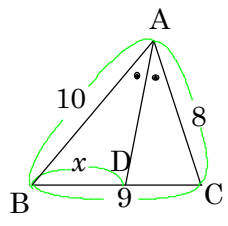
問題

②



問題

③



数学A　三角形と線分の比 3　課題

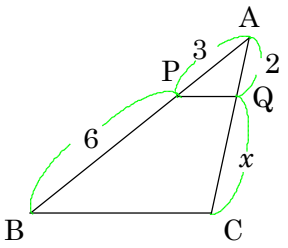
(　　)年(　　)組(　　)番(　　)

1. PQ // BC のとき，x の値を求めなさい。

Find the value of x when PQ and BC are parallel.

例題

①



AP : PB ＝ AQ : QC

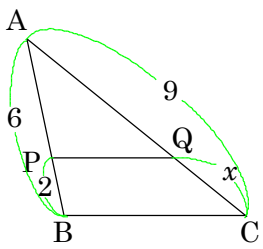
3 : 6 ＝ 2 : x

3 × x ＝ 6 × 2

3 x ＝ 12

x ＝ 4

②



AB : PB ＝ AC : QC

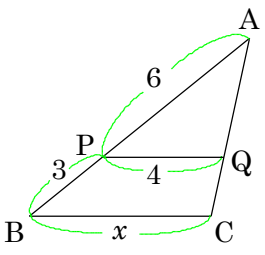
6 : 2 ＝ 9 : x

6 × x ＝ 2 × 9

6 x ＝ 18

x ＝ 3

③



AP : PQ ＝ AB : BC

6 : 4 ＝ 9 : x

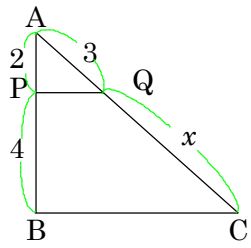
6 × x ＝ 4 × 9

6 x ＝ 36

x ＝ 6

問題

①



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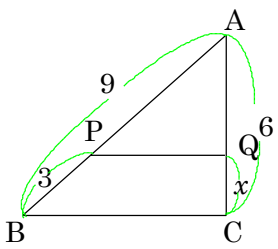
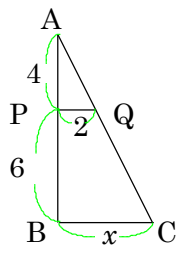


③



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Find the size x of BD when AD is the bisector of ∠A.

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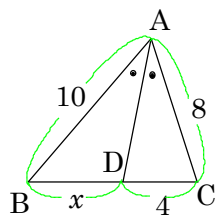


BD : DC ＝ AB : AC

x : 4 ＝ 10 : 8

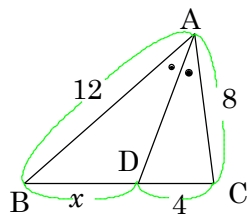
8 × x ＝ 4 × 10

8 x ＝ 40

x ＝ 5

問題

①



例題

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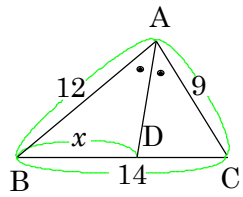


BD : DC ＝ AB : AC

x : (14 − x) ＝ 12 : 9

9 × x ＝ 12 × (14 − x)

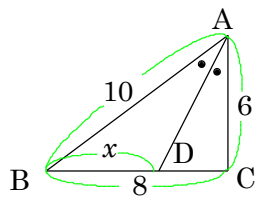
9 x ＝ 168 − 12 x

21 x ＝ 168

x ＝ 8

問題

②



問題

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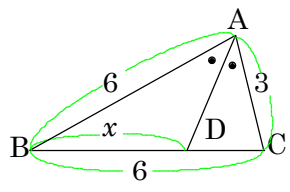

数学A　三角形と線分の比　課題

（　　）年（　　）組（　　）番（　　）

1. PQ // BC のとき，x の値を求めなさい。

Find the value of x when PQ and BC are parallel.

例題

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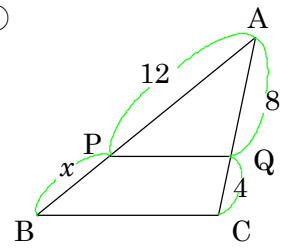


AP : PB ＝ AQ : QC

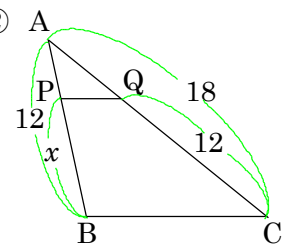
12 : x ＝ 8 : 4

8 × x ＝ 12 × 4

8 x ＝ 48

x ＝ 6

②



AB : PB ＝ AC : QC

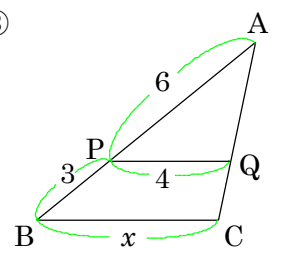
12 : x ＝ 18 : 12

18 × x ＝ 12 × 12

18 x ＝ 144

x ＝ 8

③



AP : PQ ＝ AB : BC

6 : 4 ＝ 9 : x

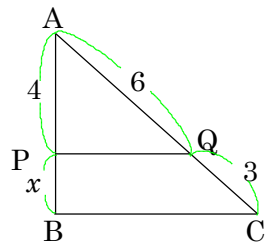
6 × x ＝ 4 × 9

6 x ＝ 36

x ＝ 6

問題

①



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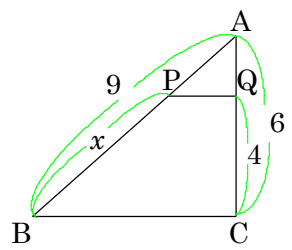

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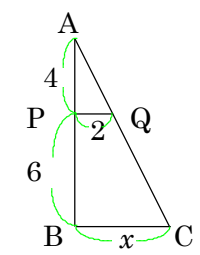

2. PQ // BC のとき，x の値を求めなさい。

Find the value of x when PQ and BC are parallel.

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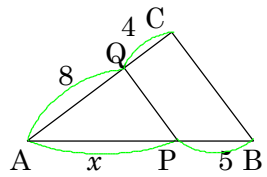


AP : PB ＝ AQ : QC

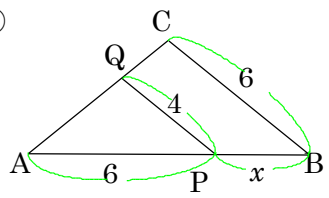
x : 5 ＝ 8 : 4

4 × x ＝ 5 × 8

4 x ＝ 40

x ＝ 10

②



AP : PQ ＝ AB : BC

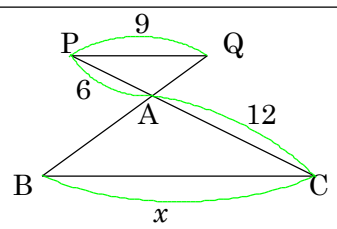
6 : 4 ＝ (6＋x) : 6

4 × (6＋x) ＝ 6 × 6

6＋x ＝ 9

x ＝ 3

③



AP : PQ ＝ AC : BC

6 : 9 ＝ 12 : x

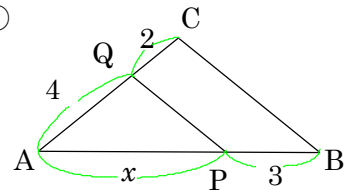
6 × x ＝ 9 × 12

6 x ＝ 108

x ＝ 18

問題

①



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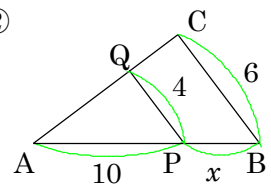
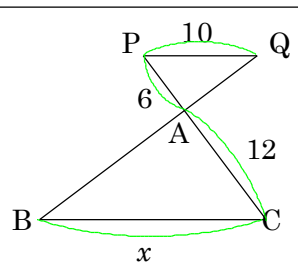


③



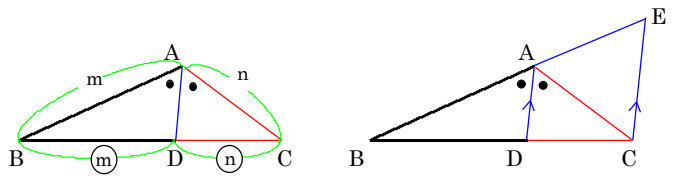
数学A　角の二等分線と線分の比　課題

(　　)年(　　)組(　　)番(　　)

1. 角の二等分線と線分の比の定理を証明せよ。

Prove the theorem for the ratio of angle bisectors and line segments.

△ABC の ∠A の二等分線と辺 BC ののの交点を D とするとき，AB : AC = BD : DC



辺 AB を延長する。点 C から辺 AD と平行に直線を引き，AB の延長線との交点を E とする。

AD // CE より　∠BAD = [　　] (同位角)

∠DAC = [　　] (錯角)

AD は ∠BAC の [　　] より

∠BAD = [　　]

∠CEA = [　　] であるから

△ACE は AC = [　　] の [　　三角形]

AD // CE より [　　] : AE = BD : DC

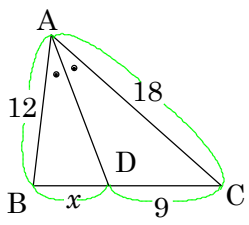
AE = [　　] であるから AB : AC = BD : DC

Q.E.D

2. AD が ∠A の 2 等分線のとき，BD の長さ x を求めよ。

Find the size x of BD when AD is the bisector of ∠A.

例題



AB : AC = BD : DC

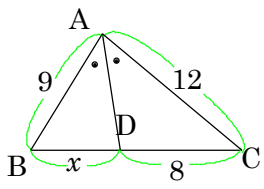
$\cancel{12}^{2} : \cancel{18}^{3} = x : 9$

$3 \times x = 9 \times 2$

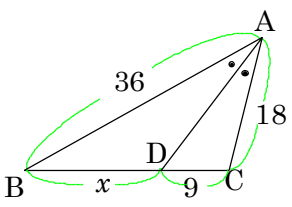
$3x = 18$

$x = 6$

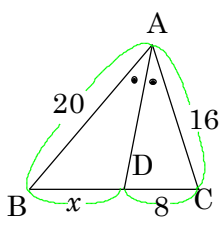
問題①



問題②



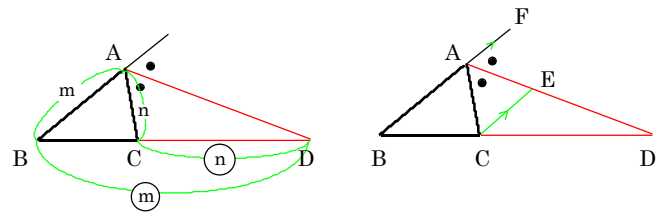
問題③



3. 外角の二等分線と線分の比の定理を証明せよ。

Prove the theorem for the ratio of the bisector of an exterior angle to a line segment.

△ABC の ∠A の外角の二等分線と辺 BC の延長線との交点を D とするとき，AB : AC = BD : DC



辺 AB を延長し F とする。点 C から辺 AB と平行に直線を引き，線分 AD との交点を E とする。

AB // CE より　∠FAE = [　　] (錯角)

AD は ∠CAF の [　　] より

∠FAE = [　　]

∠CAE = [　　] であるから

△ACE は AC = [　　] の [　　三角形]

AB // CE より [　　] : CE = BD : DC

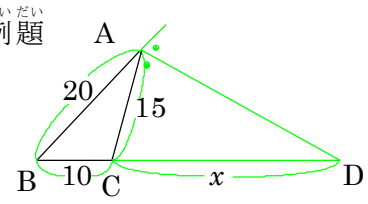
CE = [　　] であるから AB : AC = BD : DC

Q.E.D

4. AD は ∠A の外角の 2 等分線，BD の長さ x を求めよ。

Find the size x of BD when AD is the bisector of exterior of ∠A.

例題



AB : AC = BD : DC

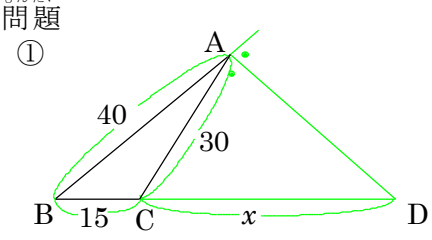
$\cancel{20}^{4} : \cancel{15}^{3} = (10 + x) : x$

$4 \times x = 3 \times (10 + x)$

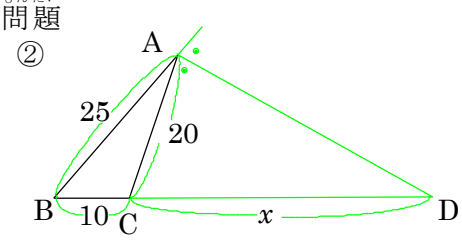
$4x = 30 + 3x$

$x = 30$

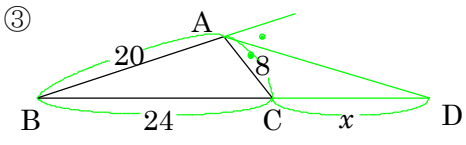
問題①



問題②



問題③



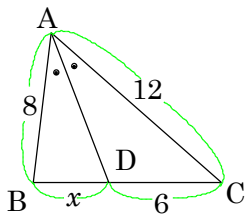
数学A　角の二等分線と線分の比 2 課題

(　　)年(　　)組(　　)番(　　)

1. AD が∠A の 2 等分線のとき，BD の長さ x を求めよ。

Find the size x of BD when AD is the bisector of ∠A.

例題



AB : AC = BD : DC

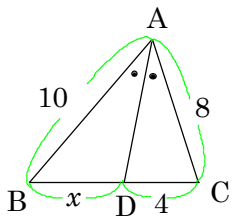
$8 : 12 = x : 6$

$12 \times x = 6 \times 8$

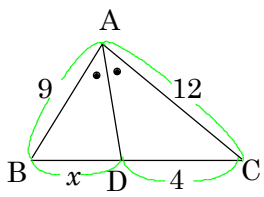
$12x = 48$

$x = 4$

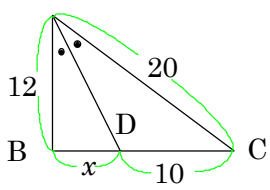
問題①



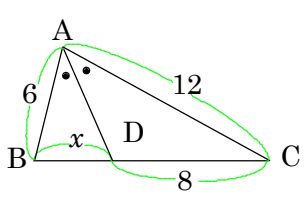
問題②



問題③



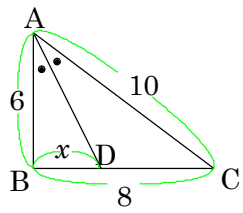
問題④



2. AD が∠A の 2 等分線のとき，BD の長さ x を求めよ。

Find the size x of BD when AD is the bisector of ∠A.

例題



AB : AC = BD : DC

$6 : 10 = x : (8 - x)$

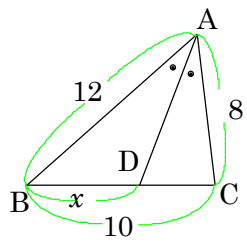
$10 \times x = 6 \times (8 - x)$

$10x = 48 - 6x$

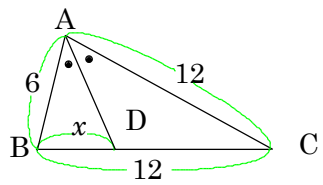
$16x = 48$

$x = 3$

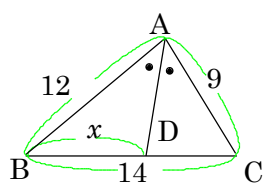
問題①



問題②



問題③



問題④