

1. 次の問題を解きなさい。

Answer the following questions.

2. たすき掛けを用いて因数分解せよ。

Factor the following equation using cross multiplication.

例題	問題
$(ax + b)(cx + d)$ $= 2x^2 + \bigcirc x + 3$ となる式を求めよ。 Find the formula. $\begin{pmatrix} ax \times cx = 2x^2 \\ b \times d = 3 \end{pmatrix}$ $a \times c = 2$ となる数は $a = 2, c = 1$ $b \times d = 3$ となる数は ① $b = 3, d = 1$ $\begin{array}{r} 2 \times 3 \rightarrow 3 \\ 1 \times 1 \rightarrow 2 \\ \hline 5 \end{array}$ $(2x + 3)(x + 1)$ $= 2x^2 + 5x + 3$ ② $b = 1, d = 3$ $\begin{array}{r} 2 \times 1 \rightarrow 1 \\ 1 \times 3 \rightarrow 6 \\ \hline 7 \end{array}$ $(2x + 1)(x + 3)$ $= 2x^2 + 7x + 3$ ③ $b = -3, d = -1$ $\begin{array}{r} 2 \times -3 \rightarrow -3 \\ 1 \times -1 \rightarrow -2 \\ \hline -5 \end{array}$ $(2x - 3)(x - 1)$ $= 2x^2 - 5x + 3$ ④ $b = -1, d = -3$ $\begin{array}{r} 2 \times -1 \rightarrow -1 \\ 1 \times -3 \rightarrow -6 \\ \hline -7 \end{array}$ $(2x - 1)(x - 3)$ $= 2x^2 - 7x + 3$	$(ax + b)(cx + d)$ $= 2x^2 + \bigcirc x + 5$ となる式を求めよ。

例題	問題
① $6x^2 + 5x + 1$ $= (2x + 1)(3x + 1)$ $\begin{pmatrix} a \times c = 6, b \times d = 1 \\ 6 \times 1, 1 \times 1 \\ 3 \times 2, (-1) \times (-1) \end{pmatrix}$ $\begin{array}{r} 6 \times 1 \rightarrow 1 \\ 1 \times 1 \rightarrow 6 \\ \hline 7 \end{array}$ $\begin{array}{r} 3 \times 2 \rightarrow 2 \\ 2 \times 1 \rightarrow 3 \\ \hline 5 \end{array}$	① $4x^2 + 5x + 1$
② $2x^2 + x - 1$ $= (2x - 1)(x + 1)$ $\begin{pmatrix} a \times c = 2, b \times d = -1 \\ 2 \times 1, 1 \times (-1) \end{pmatrix}$ $\begin{array}{r} 2 \times 1 \rightarrow 1 \\ 1 \times -1 \rightarrow -2 \\ \hline -1 \end{array}$ $\begin{array}{r} 2 \times -1 \rightarrow -1 \\ 1 \times 1 \rightarrow 2 \\ \hline 1 \end{array}$	② $3x^2 + 2x - 1$
③ $2x^2 + 5x + 2$ $= (2x + 1)(x + 2)$ $\begin{pmatrix} a \times c = 2, b \times d = 2 \\ 2 \times 1, 2 \times 1 \end{pmatrix}$ $\begin{array}{r} 2 \times 2 \rightarrow 2 \\ 1 \times 2 \rightarrow 2 \\ \hline 4 \end{array}$ $\begin{array}{r} 2 \times 1 \rightarrow 1 \\ 1 \times 2 \rightarrow 4 \\ \hline 5 \end{array}$	③ $3x^2 + 10x + 3$

1. 次の問題を解きなさい。

Answer the following questions.

2. たすき掛けを用いて因数分解せよ。

Factor the following equation using cross multiplication.

例題	問題
$(ax + b)(cx + d)$ $= 3x^2 + \bigcirc x - 2$ となる式を求めよ。 Find the formula. $\begin{pmatrix} ax \times cx = 3x^2 \\ b \times d = -2 \end{pmatrix}$ $a \times c = 3$ となる数は $a = 3, c = 1$ $b \times d = -2$ となる数は ① $b = 1, d = -2$ $\begin{array}{r} 3 \times 1 \rightarrow 3 \\ 1 \times -2 \rightarrow -2 \\ \hline -5 \end{array}$ $\underline{(3x + 1)(x - 2)}$ $= 3x^2 - 5x - 2$ ② $b = -2, d = 1$ $\begin{array}{r} 3 \times -2 \rightarrow -6 \\ 1 \times 1 \rightarrow 1 \\ \hline -5 \end{array}$ $\underline{(3x - 2)(x + 1)}$ $= 3x^2 + x - 2$ ③ $b = -1, d = 2$ $\begin{array}{r} 3 \times -1 \rightarrow -3 \\ 1 \times 2 \rightarrow 2 \\ \hline -1 \end{array}$ $\underline{(3x - 1)(x + 2)}$ $= 3x^2 + 5x - 2$ ④ $b = 2, d = -1$ $\begin{array}{r} 3 \times 2 \rightarrow 6 \\ 1 \times -1 \rightarrow -1 \\ \hline 5 \end{array}$ $\underline{(3x + 2)(x - 1)}$ $= 3x^2 - x - 2$	$(ax + b)(cx + d)$ $= 3x^2 + \bigcirc x - 5$ となる式を求めよ。

例題	問題
① $8x^2 + 6x + 1$ $= \underline{(4x + 1)(2x + 1)}$ $\begin{pmatrix} a \times c = 8, b \times d = 1 \\ 8 \times 1, 1 \times 1 \\ 4 \times 2, (-1) \times (-1) \end{pmatrix}$ $\begin{array}{r} 8 \times 1 \rightarrow 8 \\ 1 \times 2 \rightarrow 2 \\ \hline 10 \end{array}$ $\begin{array}{r} 4 \times 1 \rightarrow 4 \\ 2 \times 1 \rightarrow 2 \\ \hline 6 \end{array}$	① $9x^2 + 6x + 1$
② $7x^2 + 6x - 1$ $= \underline{(7x + 1)(x - 1)}$ $\begin{pmatrix} a \times c = 7, b \times d = -1 \\ 7 \times 1, 1 \times (-1) \end{pmatrix}$ $\begin{array}{r} 7 \times 1 \rightarrow 7 \\ 1 \times -1 \rightarrow -1 \\ \hline 6 \end{array}$ $\begin{array}{r} 7 \times -1 \rightarrow -7 \\ 1 \times 1 \rightarrow 1 \\ \hline -6 \end{array}$	② $5x^2 + 4x - 1$
③ $2x^2 + 7x + 5$ $= \underline{(2x + 5)(x + 1)}$ $\begin{pmatrix} a \times c = 2, b \times d = 5 \\ 2 \times 1, 5 \times 1 \end{pmatrix}$ $\begin{array}{r} 2 \times 1 \rightarrow 2 \\ 1 \times 5 \rightarrow 5 \\ \hline 7 \end{array}$ $\begin{array}{r} 2 \times 5 \rightarrow 10 \\ 1 \times 1 \rightarrow 1 \\ \hline 11 \end{array}$	③ $3x^2 + 8x + 5$

れいだい 例題	もんだい 問題
<p>① $6x^2 + 7x + 1$</p> <p><u>$= (6x + 1)(x + 1)$</u></p> <div><div><div>6</div><div>1</div><div>×</div><div>1</div><div>→ 1</div><div>→ 6</div></div><div>7</div></div> <div><div><div>3</div><div>2</div><div>×</div><div>1</div><div>→ 2</div><div>→ 3</div></div><div>5</div></div>	<p>① $4x^2 + 4x + 1$</p>
<p>② $8x^2 - 6x + 1$</p> <p><u>$= (4x - 1)(2x - 1)$</u></p> <div><div><div>8</div><div>1</div><div>×</div><div>-1</div><div>→ -1</div><div>→ -8</div></div><div>-9</div></div> <div><div><div>4</div><div>2</div><div>×</div><div>-1</div><div>→ -2</div><div>→ -4</div></div><div>-6</div></div>	<p>② $9x^2 - 10x + 1$</p>
<p>③ $3x^2 + 2x - 1$</p> <p><u>$= (3x - 1)(x + 1)$</u></p> <div><div><div>3</div><div>1</div><div>×</div><div>1</div><div>→ 1</div><div>→ -3</div></div><div>-2</div></div> <div><div><div>3</div><div>1</div><div>×</div><div>-1</div><div>→ -1</div><div>→ 3</div></div><div>2</div></div>	<p>③ $5x^2 + 4x - 1$</p>
<p>④ $2x^2 - x - 1$</p> <p><u>$= (2x + 1)(x - 1)$</u></p> <div><div><div>2</div><div>1</div><div>×</div><div>1</div><div>→ 1</div><div>→ -2</div></div><div>-1</div></div> <div><div><div>2</div><div>1</div><div>×</div><div>-1</div><div>→ -1</div><div>→ 2</div></div><div>1</div></div>	<p>④ $7x^2 + 6x - 1$</p>

れいだい 例題	もんだい 問題
<div>① $3x^2 + 4x + 1$</div> <div>$= \underline{(3x + 1)(x + 1)}$</div> <div>$\begin{array}{r} 3 \times 1 \rightarrow 3 \\ 1 \times 1 \rightarrow 1 \\ \hline 4 \end{array}$</div>	<div>① $2x^2 + 3x + 1$</div>
<div>② $7x^2 - 8x + 1$</div> <div>$= \underline{(7x - 1)(x - 1)}$</div> <div>$\begin{array}{r} 7 \times -1 \rightarrow -7 \\ 1 \times -1 \rightarrow -1 \\ \hline -8 \end{array}$</div>	<div>② $5x^2 - 6x + 1$</div>
<div>③ $3x^2 + 5x + 2$</div> <div>$= \underline{(3x + 2)(x + 1)}$</div> <div>$\begin{array}{r} 3 \times 1 \rightarrow 3 \\ 1 \times 2 \rightarrow 2 \\ \hline 5 \end{array}$ $\begin{array}{r} 3 \times 1 \rightarrow 3 \\ 1 \times 2 \rightarrow 2 \\ \hline 5 \end{array}$</div>	<div>③ $2x^2 + 5x + 3$</div>
<div>④ $2x^2 - x - 3$</div> <div>$= \underline{(2x - 3)(x + 1)}$</div> <div>$\begin{array}{r} 2 \times 1 \rightarrow 2 \\ 1 \times -3 \rightarrow -3 \\ \hline -1 \end{array}$ $\begin{array}{r} 2 \times -3 \rightarrow -6 \\ 1 \times 3 \rightarrow 3 \\ \hline -3 \end{array}$ $\begin{array}{r} 2 \times 1 \rightarrow 2 \\ 1 \times -3 \rightarrow -3 \\ \hline -1 \end{array}$ $\begin{array}{r} 2 \times -3 \rightarrow -6 \\ 1 \times 3 \rightarrow 3 \\ \hline -3 \end{array}$</div>	<div>④ $5x^2 - 3x - 2$</div>

れいだい 例題	もんだい 問題
<div>⑤ $3x^2 + 8x + 4$</div> <div>$= \underline{(3x + 2)(x + 2)}$</div> <div>$\begin{array}{r} 3 \times 2 \rightarrow 6 \\ 1 \times 2 \rightarrow 2 \\ \hline 8 \end{array}$</div>	<div>⑤ $2x^2 + 9x + 4$</div>
<div>⑥ $6x^2 + 7x - 3$</div> <div>$= \underline{(3x - 1)(2x + 3)}$</div> <div>$\begin{array}{r} 6 \times 1 \rightarrow 6 \\ 1 \times -3 \rightarrow -3 \\ \hline 3 \end{array}$ $\begin{array}{r} 6 \times -3 \rightarrow -18 \\ 1 \times 3 \rightarrow 3 \\ \hline -15 \end{array}$ $\begin{array}{r} 6 \times 1 \rightarrow 6 \\ 1 \times -3 \rightarrow -3 \\ \hline 3 \end{array}$ $\begin{array}{r} 6 \times -3 \rightarrow -18 \\ 1 \times 3 \rightarrow 3 \\ \hline -15 \end{array}$ $\begin{array}{r} 6 \times 1 \rightarrow 6 \\ 1 \times -3 \rightarrow -3 \\ \hline 3 \end{array}$ $\begin{array}{r} 6 \times -3 \rightarrow -18 \\ 1 \times 3 \rightarrow 3 \\ \hline -15 \end{array}$</div>	<div>⑥ $6x^2 + x - 2$</div>

1. たすき掛けを利用して、次の式を展開せよ。
Expand the following equation using cross multiplication.

2. たすき掛けを用いて因数分解せよ。
Factor the following equation using cross multiplication.

れいだい 例題	もんだい 問題
<div>① $(2x + 3)(x + 1)$</div> <div>$= \underline{2x^2 + 5x + 3}$</div> <div><div><div>2</div><div>3</div><div>1</div><div>1</div></div><div><div>→ 3</div><div>→ 2</div><div>5</div></div></div>	<div>① $(2x + 1)(x + 3)$</div>
<div>② $(2x + 1)(3x - 2)$</div> <div>$= \underline{6x^2 - x - 2}$</div> <div><div><div>2</div><div>1</div><div>3</div><div>-2</div></div><div><div>→ 3</div><div>→ -4</div><div>-1</div></div></div>	<div>② $(2x + 1)(4x - 3)$</div>
<div>③ $(2x - 1)(3x + 1)$</div> <div>$= \underline{6x^2 - x - 1}$</div> <div><div><div>2</div><div>-1</div><div>3</div><div>1</div></div><div><div>→ -3</div><div>→ 2</div><div>-1</div></div></div>	<div>③ $(2x - 1)(4x + 1)$</div>
<div>④ $(4x - 1)(2x - 1)$</div> <div>$= \underline{8x^2 - 6x + 1}$</div> <div><div><div>4</div><div>-1</div><div>2</div><div>-1</div></div><div><div>→ -2</div><div>→ -4</div><div>-6</div></div></div>	<div>④ $(3x - 1)(2x - 1)$</div>
<div>⑤ $(x + 2)(x + 3)$</div> <div>$= \underline{x^2 + 5x + 6}$</div> <div><div><div>1</div><div>2</div><div>1</div><div>3</div></div><div><div>→ 2</div><div>→ 3</div><div>5</div></div></div>	<div>⑤ $(x + 1)(x + 3)$</div>
<div>⑥ $(x + 2)(x - 4)$</div> <div>$= \underline{x^2 - 2x - 8}$</div> <div><div><div>1</div><div>2</div><div>1</div><div>-4</div></div><div><div>→ 2</div><div>→ -4</div><div>-2</div></div></div>	<div>⑥ $(x + 1)(x - 3)$</div>
<div>⑦ $(x - 2)(x - 4)$</div> <div>$= \underline{x^2 - 6x + 8}$</div> <div><div><div>1</div><div>-2</div><div>1</div><div>-4</div></div><div><div>→ -2</div><div>→ -4</div><div>-6</div></div></div>	<div>⑦ $(x - 1)(x - 3)$</div>

例題	問題
<div>① $3x^2 + 7x + 2$</div> <div>$= \underline{(3x + 1)(x + 2)}$</div> <div><div><div>3</div><div>2</div><div>1</div><div>1</div></div><div><div>→ 2</div><div>→ 3</div><div>5</div></div></div> <div><div><div>3</div><div>1</div><div>1</div><div>2</div></div><div><div>→ 1</div><div>→ 6</div><div>7</div></div></div>	<div>① $5x^2 + 7x + 2$</div>
<div>② $2x^2 - 11x + 5$</div> <div>$= \underline{(2x - 1)(x - 5)}$</div> <div><div><div>2</div><div>-5</div><div>1</div><div>-1</div></div><div><div>→ -5</div><div>→ -2</div><div>-7</div></div></div> <div><div><div>2</div><div>-1</div><div>1</div><div>-5</div></div><div><div>→ -1</div><div>→ -10</div><div>-11</div></div></div>	<div>② $4x^2 - 5x + 1$</div>
<div>③ $3x^2 - 7x - 6$</div> <div>$= \underline{(3x + 2)(x - 3)}$</div> <div><div><div>3</div><div>1</div><div>1</div><div>-6</div></div><div><div>→ 1</div><div>→ -18</div><div>-17</div></div></div> <div><div><div>3</div><div>-2</div><div>1</div><div>3</div></div><div><div>→ -2</div><div>→ 9</div><div>7</div></div></div> <div><div><div>3</div><div>2</div><div>1</div><div>-3</div></div><div><div>→ 2</div><div>→ -9</div><div>-7</div></div></div>	<div>③ $2x^2 - x - 6$</div>
<div>④ $x^2 - 5x + 6$</div> <div>$= \underline{(x - 1)(x - 6)}$</div> <div><div><div>1</div><div>-6</div><div>1</div><div>-1</div></div><div><div>→ -6</div><div>→ -1</div><div>-7</div></div></div> <div><div><div>1</div><div>-2</div><div>1</div><div>-3</div></div><div><div>→ -2</div><div>→ -3</div><div>-5</div></div></div>	<div>④ $x^2 - 5x + 4$</div>

1. たすき掛けを用いて因数分解せよ。
Factor the following equation using cross multiplication.

2. たすき掛けを用いて因数分解せよ。
Factor the following equation using cross multiplication.

れいだい
例題① $3x^2 + 7x + 2 = (3x + 1)(x + 2)$

けいすう
 x^2 の係数は 3×1

3

2

1

1

→ 2

→ 3

(3x + 2)

(x + 1)

5

ていすう
定数は 2×1

3

1

1

2

→ 1

→ 6

(3x + 1)

(x + 2)

7

もんだい
問題① $5x^2 + 8x + 3 = () ()$

けいすう
 x^2 の係数は 5×1

5

3

1

1

→

→

ていすう
定数は 3×1

5

1

1

3

→

→

れいだい
例題② $4x^2 - 5x + 1 = (4x - 1)(x - 1)$

けいすう
 x^2 の係数は $4 \times 1, 2 \times 2$

4

-1

1

-1

→ -1

→ -4

(4x - 1)

(x - 1)

-5

ていすう
定数は $(-1) \times (-1)$

2

-1

2

-1

→ -2

→ -2

(2x - 1)

(2x - 1)

-4

もんだい
問題② $6x^2 - 5x + 1 = () ()$

けいすう
 x^2 の係数は $6 \times 1, 3 \times 2$

6

-1

1

-1

→

→

ていすう
定数は $(-1) \times (-1)$

3

-1

2

-1

→

→

れいだい
例題③ $3x^2 - 5x - 2 = (3x + 1)(x - 2)$

けいすう
 x^2 の係数は 3×1

3

2

1

-1

→ 2

→ -3

(3x + 2)

(x - 1)

-1

ていすう
定数は $2 \times (-1), (-2) \times 1$

3

-1

1

2

→ -1

→ 6

(3x - 1)

(x + 2)

5

けいすう
 x^2 の係数は 3×1

3

-2

1

1

→ -2

→ 3

(3x - 2)

(x + 1)

1

ていすう
定数は $3 \times (-1), (-3) \times 1$

3

1

1

-2

→ 1

→ -6

(3x + 1)

(x - 2)

-5

もんだい
問題③ $2x^2 - 5x - 3 = () ()$

けいすう
 x^2 の係数は 2×1

2

3

1

-1

→

→

ていすう
定数は $3 \times (-1), (-3) \times 1$

2

-1

1

3

→

→

れいだい
例題① $x^2 + 5xy + 6y^2 = (x + 2y)(x + 3y)$

1

1

1

6

→ 1

→ 6

7

1

2

1

3

→ 2

→ 3

5

もんだい
問題① $x^2 + 6xy + 8y^2 = () ()$

→

→

→

→

れいだい
例題② $x^2 - xy - 2y^2 = (x - 2y)(x + y)$

1

2

1

-1

→ 2

→ -1

1

1

-2

1

1

→ -2

→ 1

-1

もんだい
問題② $x^2 - 2xy - 3y^2 = () ()$

→

→

→

→

れいだい
例題③ $x^2 - 6xy + 9y^2 = (x - 3y)^2$

1

-1

1

-9

→ -1

→ -9

-10

1

-3

1

-3

→ -3

→ -3

-6

もんだい
問題③ $x^2 - 4xy + 4y^2 = ()^2$

→

→

→

→

れいだい
例題④ $x^2 - 25y^2 = (x - 5y)(x + 5y)$

1

-1

1

25

→ -1

→ 25

24

1

-5

1

5

→ -5

→ 5

0

もんだい
問題④ $x^2 - 4y^2 = () ()$

→

→

→

→

れいだい
例題⑤ $5x^2 + 11xy + 2y^2 = (5x + y)(x + 2y)$

5

2

1

1

→ 2

→ 5

7

5

1

1

2

→ 1

→ 10

11

もんだい
問題⑤ $2x^2 + 5xy + 3y^2 = () ()$

→

→

→

→

1. たすき掛けを用いて因数分解せよ。
Factor the following equation using cross multiplication.
2. たすき掛けを用いて因数分解せよ。
Factor the following equation using cross multiplication.

れいだい
例題①

$4x^2 + 5x + 1 = (4x + 1)(x + 1)$

4

1

1

1

→ 1

→ 4

2

2

1

1

→ 2

→ 2

5

4

もんだい
問題①

$6x^2 + 7x + 1 = () ()$

→

→

→

→

れいだい
例題②

$3x^2 - x - 2 = (3x + 2)(x - 1)$

3

1

2

-1

→ 2

→ -3

3

1

-1

2

→ -1

→ 6

-1

5

3

1

-2

1

→ -2

→ 3

3

1

1

-2

→ -6

→ -5

1

-5

もんだい
問題②

$2x^2 - x - 3 = () ()$

→

→

→

→

→

→

→

→

れいだい
例題③

$8x^2 - 6x + 1 = (4x - 1)(2x - 1)$

8

1

-1

-1

→ -1

→ -8

4

2

-1

-1

→ -2

→ -4

-9

-6

もんだい
問題③

$9x^2 - 10x + 1 = () ()$

→

→

→

→

れいだい
例題④

$4x^2 - 4xy + y^2 = (2x - y)^2$

4

1

-1

-1

→ -1

→ -4

2

2

-1

-1

→ -2

→ -2

-5

-4

もんだい
問題④

$9x^2 - 6xy + y^2 = ()^2$

→

→

→

→

もんだい
問題①

$10x^2 + 7x + 1 = () ()$

→

→

→

→

もんだい
問題②

$x^2 + 7x + 10 = () ()$

→

→

→

→

もんだい
問題③

$3x^2 - 2x - 5 = () ()$

→

→

→

→

もんだい
問題④

$2x^2 - 5x - 7 = () ()$

→

→

→

→

→

→

→

→

もんだい
問題⑤

$4x^2 - 4x + 1 = () ()$

→

→

→

→

もんだい
問題⑥

$3x^2 - 4x + 1 = () ()$

→

→

→

→

もんだい
問題⑦

$x^2 + 2xy - 3y^2 = () ()$

→

→

→

→

もんだい
問題⑧

$25x^2 - y^2 = () ()$

→

→

→

→

