

Grade 11 worksheet

# What Happened When the Boarding House Blew Up?

Factor each trinomial below. Find one of the factors in **each** column of binomials. Notice the letter next to one factor and the number next to the other. Write the letter in the box at the bottom of the page that contains the matching number.

- ①  $3x^2 + 7x + 2 = (x+2)(3x+1)$
- ②  $2x^2 + 5x + 3 = (x+1)(2x+3)$
- ③  $3x^2 - 16x + 5 = (x-5)(3x-1)$
- ④  $7x^2 - 9x + 2 = (x-1)(7x-2)$
- ⑤  $6u^2 + 5u + 1 = (3u+1)(2u+1)$
- ⑥  $8u^2 - 9u + 1 = (u-1)(8u-1)$
- ⑦  $10u^2 + 17u + 3 = (2u+3)(5u+1)$
- ⑧  $9u^2 - 9u + 2 = (3u-2)(3u-1)$
- ⑨  $5u^2 + 11u + 6 = (u+1)(5u+6)$

- |   |          |   |          |
|---|----------|---|----------|
| ⑤ | $(5u+3)$ | Y | $(3u-2)$ |
| ③ | $(x-1)$  | E | $(x-5)$  |
| ⑧ | $(3x+1)$ | G | $(8u-1)$ |
| ⑭ | $(3u-1)$ | O | $(7x-2)$ |
| ⑥ | $(2u+3)$ | R | $(5u+1)$ |
| ⑮ | $(x+1)$  | W | $(x+2)$  |
| ⑨ | $(5u+6)$ | L | $(7x+2)$ |
| ⑦ | $(2u+1)$ | I | $(2x+3)$ |
| ⑪ | $(3x-1)$ | E | $(u+1)$  |
| ⑰ | $(u-1)$  | S | $(3u+1)$ |

- ⑩  $3n^2 + 2n - 1 = (n+1)(3n-1)$
- ⑪  $5n^2 - 4n - 1 = (n-1)(5n+1)$
- ⑫  $2n^2 + 5n - 3 = (n+3)(2n-1)$
- ⑬  $7n^2 - 13n - 2 = (n-2)(7n+1)$
- ⑭  $3t^2 + 14t - 5 = (t+5)(3t-1)$
- ⑮  $4t^2 - 11t + 7 = (4t-7)(t-1)$
- ⑯  $6t^2 + 5t - 1 = (t+1)(6t-1)$
- ⑰  $3t^2 - 20t - 7 = (t-7)(3t+1)$

- |   |          |   |          |
|---|----------|---|----------|
| ⑫ | $(3t-1)$ | N | $(n+3)$  |
| ⑤ | $(n-1)$  | R | $(t-1)$  |
| ④ | $(3t+1)$ | P | $(2t+1)$ |
| ⑩ | $(n-2)$  | O | $(n+1)$  |
| ⑬ | $(t+1)$  | F | $(t+5)$  |
| ② | $(3n-1)$ | E | $(5n+1)$ |
| ⑯ | $(2n-1)$ | M | $(t-7)$  |
| ④ | $(3t-7)$ | R | $(7n+1)$ |
| ① | $(4t-7)$ | L | $(6t-1)$ |

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
R	O	O	M	E	R	S	W	E	R	E	F	L	Y	I	N	G

OBJECTIVE 3-o: To factor trinomials of the form  $ax^2 + bx + c$ , where  $a$  is a positive integer greater than 1.



# Lesson 3.6B Worksheet

KEY

①  $3x^2 + 7x + 2$        $3 \times 2 = \textcircled{6}$        $2 \times 3 = \textcircled{6}$   
 $\begin{array}{r} 3x^2 + 6x + x + 2 \\ 3x(x+2) + 1(x+2) \\ \hline (x+2)(3x+1) \end{array}$        $\begin{array}{r} 2x^2 + 5x + 3 \\ 2x^2 + 2x + 3x + 3 \\ 2x(x+1) + 3(x+1) \\ \hline (x+1)(2x+3) \end{array}$

③  $3x^2 - 16x + 5$        $3 \times 5 = \textcircled{15}$        $7 \times 2 = \textcircled{14}$   
 $\begin{array}{r} 3x^2 - 15x - x + 5 \\ 3x(x-5) - 1(x-5) \\ \hline (x-5)(3x-1) \end{array}$        $\begin{array}{r} 7x^2 - 9x + 2 \\ 7x^2 - 7x - 2x + 2 \\ 7x(x-1) - 2(x-1) \\ \hline (x-1)(7x-2) \end{array}$

⑤  $6u^2 + 5u + 1$        $6 \times 1 = \textcircled{6}$        $8 \times 1 = \textcircled{8}$   
 $\begin{array}{r} 6u^2 + 2u + 3u + 1 \\ 2u(3u+1) + 1(3u+1) \\ \hline (3u+1)(2u+1) \end{array}$        $\begin{array}{r} 8u^2 - 9u + 1 \\ 8u^2 - 8u - u + 1 \\ 8u(u-1) - 1(u-1) \\ \hline (u-1)(8u-1) \end{array}$

⑦  $10u^2 + 17u + 3$        $10 \times 3 = \textcircled{30}$        $9 \times 2 = \textcircled{18}$   
 $\begin{array}{r} 10u^2 + 15u + 2u + 3 \\ 5u(2u+3) + 1(2u+3) \\ \hline (2u+3)(5u+1) \end{array}$        $\begin{array}{r} 9u^2 - 9u + 2 \\ 9u^2 - 6u - 3u + 2 \\ 3u(3u-2) - 1(3u-2) \\ \hline (3u-2)(3u-1) \end{array}$

⑨  $5u^2 + 11u + 6$        $5 \times 6 = \textcircled{30}$        $3 \times (-1) = \textcircled{-3}$   
 $\begin{array}{r} 5u^2 + 5u + 6u + 6 \\ 5u(u+1) + 6(u+1) \\ \hline (u+1)(5u+6) \end{array}$        $\begin{array}{r} 3n^2 + 2n - 1 \\ 3n^2 + 3n - n - 1 \\ 3n(n+1) - 1(n+1) \\ \hline (n+1)(3n-1) \end{array}$

⑪  $5n^2 - 4n - 1$        $5 \times (-1) = \textcircled{-5}$        $2 \times (-3) = \textcircled{-6}$   
 $\begin{array}{r} 5n^2 - 5n + n - 1 \\ 5n(n-1) + 1(n-1) \\ \hline (n-1)(5n+1) \end{array}$        $\begin{array}{r} 2n^2 + 5n - 3 \\ 2n^2 + 6n - n - 3 \\ 2n(n+3) - 1(n+3) \\ \hline (n+3)(2n-1) \end{array}$

$$\textcircled{13} \quad 7n^2 - 13n - 2$$

$$7n^2 - 14n + n - 2$$

$$7n(n-2) + 1(n-2)$$

$$(n-2)(7n+1)$$

$$7 \times (-2) = \textcircled{-14}$$
  
$$-14 + 1$$

$$\textcircled{14} \quad 3t^2 + 14t - 5$$

$$3t^2 + 15t - t - 5$$

$$3t(t+5) - 1(t+5)$$

$$(t+5)(3t-1)$$

$$3 \times (-5) = \textcircled{-15}$$
  
$$15 - 1$$

$$\textcircled{15} \quad 4t^2 - 11t + 7$$

$$4t^2 - 7t - 4t + 7$$

$$t(4t-7) - 1(4t-7)$$

$$(4t-7)(t-1)$$

$$4 \times 7 = \textcircled{28}$$
  
$$-7 - 4$$

$$\textcircled{16} \quad 6t^2 + 5t - 1$$

$$6t^2 + 6t - t - 1$$

$$6t(t+1) - 1(t+1)$$

$$(t+1)(6t-1)$$

$$6 \times (-1) = \textcircled{-6}$$
  
$$6 - 1$$

$$\textcircled{17} \quad 3t^2 - 20t - 7$$

$$3t^2 - 21t + t - 7$$

$$3t(t-7) + 1(t-7)$$

$$(t-7)(3t+1)$$

$$3 \times (-7) = \textcircled{-21}$$
  
$$-21 + 1$$