

Math II Name _____ ID: 1

Factoring Perfect Square Trinomials

Date _____ Period _____

Factor each completely.

1) $x^2 + 8x + 16$
 $\begin{matrix} 4 & \times & 4 \\ 8 & & \end{matrix}$
 $(x+4)(x+4) \rightarrow (x+4)^2$

3) $k^2 + 4k + 4$
 $\begin{matrix} 2 & \times & 2 \\ 4 & & \end{matrix}$
 $(k+2)(k+2) \rightarrow (k+2)^2$

5) $4n^2 - 4n + 1$
 $\begin{matrix} 2 & \times & 2 \\ 4 & & \end{matrix}$
 $(n-\frac{1}{2})(n-\frac{1}{2})$
 $(2n-1)(2n-1) \rightarrow (2n-1)^2$

7) $25x^2 - 10x + 1$
 $\begin{matrix} 5 & \times & 5 \\ 10 & & \end{matrix}$
 $(x-\frac{1}{5})(x-\frac{1}{5})$
 $(5x-1)(5x-1) \rightarrow (5x-1)^2$

9) $x^2 - 8x + 16$
 $\begin{matrix} 4 & \times & 4 \\ 8 & & \end{matrix}$
 $(x-4)(x-4) \rightarrow (x-4)^2$


2) $25v^2 - 20v + 4$
 $\begin{matrix} 10 & \times & 10 \\ 20 & & \end{matrix}$
 $(v-\frac{2}{5})(v-\frac{2}{5})$
 $(5v-2)(5v-2) \rightarrow (5v-2)^2$

4) $b^2 - 10b + 25$
 $\begin{matrix} 5 & \times & 5 \\ 10 & & \end{matrix}$
 $(b-5)(b-5) \rightarrow (b-5)^2$

6) $4m^2 + 12m + 9$
 $\begin{matrix} 2 & \times & 2 \\ 4 & & \end{matrix}$
 $(m+\frac{3}{2})(m+\frac{3}{2})$
 $(2m+3)(2m+3) \rightarrow (2m+3)^2$

8) $25m^2 - 30m + 9$
 $\begin{matrix} 5 & \times & 5 \\ 30 & & \end{matrix}$
 $(m-\frac{3}{5})(m-\frac{3}{5})$
 $(5m-3)(5m-3) \rightarrow (5m-3)^2$

10) $x^2 + 2x + 1$
 $\begin{matrix} 1 & \times & 1 \\ 2 & & \end{matrix}$
 $(x+1)(x+1) \rightarrow (x+1)^2$

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<p>11) $75n^2 + 60n + 12$ $\frac{100}{20} \times \frac{10}{10}$ $3(25n^2 + 20n + 4)$ $3(n^2 + 20n + 100)$ $3(n+10)(n+10)$</p>	<p>$3(n+10)(n+10)$ $\frac{25}{25} \frac{25}{25}$ $3(n+\frac{2}{5})(n+\frac{2}{5})$ $3(5n+2)^2$</p>	<p>12) $8x^2 + 40x + 50$ $\frac{100}{20} \times \frac{10}{10}$ $2(4x^2 + 20x + 25)$ $2(x+10)(x+10)$</p>	<p>$2(x+\frac{5}{2})(x+\frac{5}{2})$ $2(2x+5)^2$</p>
<p>13) $27k^2 - 72k + 48$ $\frac{144}{-24} \times \frac{-12}{-12}$ $3(9k^2 - 24k + 16)$ $3(k^2 - 24k + 144)$ $3(k-12)(k-12)$</p>	<p>$3(k-12)(k-12)$ $\frac{9}{9} \frac{9}{9}$ $3(k-\frac{4}{3})(k-\frac{4}{3})$ $3(3k-4)^2$</p>	<p>14) $50r^2 + 20r + 2$ $\frac{100}{20} \times \frac{10}{10}$ $2(25r^2 + 10r + 1)$ $2(r^2 + 10r + 25)$ $2(r+5)(r+5)$</p>	<p>$2(r+\frac{5}{25})(r+\frac{5}{25})$ $2(r+\frac{1}{5})(r+\frac{1}{5})$ $2(5r-1)^2$</p>
<p>15) $12x^2 - 36x + 27$ $\frac{36}{-12} \times \frac{-6}{-6}$ $3(4x^2 - 12x + 9)$ $3(x^2 - 12x + 36)$ $3(x-6)(x-6)$</p>	<p>$3(x-\frac{6}{4})(x-\frac{6}{4})$ $3(x-\frac{3}{2})(x-\frac{3}{2})$ $3(2x-3)^2$</p>	<p>16) $45v^2 - 30v + 5$ $\frac{9}{-3} \times \frac{-3}{-3}$ $5(9v^2 - 6v + 1)$ $5(v^2 - 6v + 9)$ $5(v-3)(v-3)$</p>	<p>$5(v-\frac{3}{9})(v-\frac{3}{9})$ $5(v-\frac{1}{3})(v-\frac{1}{3})$ $5(3v-1)^2$</p>
<p>17) $18b^2 + 24b + 8$ $\frac{36}{-12} \times \frac{6}{6}$ $2(9b^2 + 12b + 4)$ $2(b^2 + 12b + 36)$ $2(b+6)(b+6)$</p>	<p>$2(b+\frac{6}{9})(b+\frac{6}{9})$ $2(b+\frac{2}{3})(b+\frac{2}{3})$ $2(3b+2)^2$</p>	<p>18) $36k^2 - 96k + 64$ $\frac{144}{-24} \times \frac{-12}{-12}$ $4(9k^2 - 24k + 16)$ $4(k^2 - 24k + 144)$ $4(k-12)(k-12)$</p>	<p>$4(k-\frac{12}{9})(k-\frac{12}{9})$ $4(k-\frac{4}{3})(k-\frac{4}{3})$ $4(3k-4)^2$</p>
<p>19) $36n^2 + 48n + 16$ $\frac{36}{12} \times \frac{6}{6}$ $4(9n^2 + 12n + 4)$ $4(n^2 + 12n + 36)$ $4(n+6)(n+6)$</p>	<p>$4(n+\frac{6}{9})(n+\frac{6}{9})$ $4(n+\frac{2}{3})(n+\frac{2}{3})$ $4(3n+2)^2$</p>	<p>20) $45n^2 + 30n + 5$ $\frac{9}{-3} \times \frac{3}{3}$ $5(9n^2 + 6n + 1)$ $5(n^2 + 6n + 9)$ $5(n+3)(n+3)$</p>	<p>$5(n+\frac{3}{9})(n+\frac{3}{9})$ $5(n+1)^2$</p>