

Homework 31.2

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Solve each equation by factoring.

1) $(3p+5)(p-5)=0$

$$\begin{array}{r} 3p+5=0 \\ -5 \quad -5 \\ \hline 3p = -5 \\ 3 \quad 3 \\ p = -\frac{5}{3} \end{array}$$

3) $x^2 + 6x = 0$

$$\begin{array}{r} x(x+6)=0 \\ x=0 \quad x+6=0 \\ \hline -6 \quad -6 \\ x=-6 \end{array}$$

5) $r^2 - 2r = 35$

$$\begin{array}{r} -35 -35 \\ \hline r^2 - 2r - 35 = 0 \\ \quad \quad \quad \begin{array}{r} -1 \quad 35 \\ +5 \quad -7 \\ \hline \end{array} \end{array}$$

$$(r+5)(r-7) = 0$$

$$\begin{array}{r} r+5=0 \\ -5 \quad -5 \\ \hline r=-5 \end{array} \quad \begin{array}{r} r-7=0 \\ +7 \quad +7 \\ \hline r=7 \end{array}$$

Find each product.

7) $(7x+4)(4x+2)$

$28x^2 + 14x + 16x + 8$

$28x^2 + 30x + 8$

2) $(k+2)(k-5)=0$

$$\begin{array}{r} k+2=0 \\ -2 \quad -2 \\ \hline k = -2 \end{array} \quad \begin{array}{r} k-5=0 \\ +5 \quad +5 \\ \hline k = 5 \end{array}$$

4) $n^2 - 9n + 18 = 0$

$$\begin{array}{r} +18 \\ 1 \quad 18 \\ \hline 2 \quad 9 \\ -3 \quad -6 \\ \hline \end{array}$$

$$(n-3)(n-6) = 0$$

$$\begin{array}{r} n-3=0 \\ +3 \quad +3 \\ \hline n=3 \end{array} \quad \begin{array}{r} n-6=0 \\ +6 \quad +6 \\ \hline n=6 \end{array}$$

6) $m^2 + 36 = -12m$

$$\begin{array}{r} +36 \\ 1 \quad 36 \\ \hline 2 \quad 18 \\ 3 \quad 12 \\ 4 \quad 9 \\ +6 \quad +6 \\ \hline \end{array}$$

$$m^2 + 12m + 36 = 0$$

$$(m+6)(m+6) = 0$$

$$\begin{array}{r} m+6=0 \\ -6 \quad -6 \\ \hline m=-6 \end{array} \quad \begin{array}{r} m+6=0 \\ -6 \quad -6 \\ \hline m=-6 \end{array}$$

8) $(3n+6)(8n-7)$

$24n^2 - 21n + 48n - 42$

$24n^2 + 27n - 42$

Answers to Homework 31.2

1) $\left\{-\frac{5}{3}, 5\right\}$

2) $\{-2, 5\}$

3) $\{-6, 0\}$

4) $\{6, 3\}$

5) $\{7, -5\}$

6) $\{-6\}$

7) $28x^2 + 30x + 8$

8) $24n^2 + 27n - 42$