

Homework 27.2

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Factor each completely.

1) $p^2 + 17p + 70$

$$(p+7)(p+10)$$

$$\begin{array}{r} +70 \\ 1 \quad 70 \\ 2 \quad 35 \\ +5 \quad 14 \\ +7 \quad 10 \end{array}$$

2) $n^2 - n - 30$

$$(n+5)(n-6)$$

$$\begin{array}{r} -30 \\ 1 \quad 30 \\ 2 \quad 15 \\ 3 \quad 10 \\ +5 \quad -6 \end{array}$$

3) $n^2 - 4n - 32$

$$(n+4)(n-8)$$

$$\begin{array}{r} -32 \\ 1 \quad 32 \\ 2 \quad 16 \\ +4 \quad -8 \end{array}$$

4) $r^2 + 8r - 20$

$$(r-2)(r+10)$$

$$\begin{array}{r} -20 \\ 1 \quad 20 \\ -2 \quad 10 \\ 4 \quad 5 \end{array}$$

5) $n^2 - 13n + 40$

$$(n-5)(n-8)$$

$$\begin{array}{r} +40 \\ 1 \quad 40 \\ 2 \quad 20 \\ 4 \quad 10 \\ -5 \quad -8 \end{array}$$

6) $r^2 + 8r + 12$

$$(r+2)(r+6)$$

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

7) $a^2 - 16$

$$a^2 + 0a - 16$$

$$(a-4)(a+4)$$

$$\begin{array}{r} -16 \\ 1 \quad 16 \\ 2 \quad 8 \\ +4 \quad -4 \end{array}$$

8) $n^2 - 1$

$$n^2 + 0n - 1$$

$$(n+1)(n-1)$$

$$\begin{array}{r} -1 \\ -1 \quad 1 \end{array}$$

9) $16x^2 - 9$

$$\begin{array}{c} \downarrow \quad \downarrow \\ (4x-3)(4x+3) \end{array}$$

10) $4n^2 - 25$

$$\begin{array}{c} \downarrow \quad \downarrow \\ (2n+5)(2n-5) \end{array}$$

Solve each system by elimination.

11) $x - 3y = 9$

$$x + 3y = -21$$

$$\frac{2x}{2} = \frac{-12}{2}$$

$$x = -6$$

$$\begin{array}{r} -6 - 3y = 9 \\ +6 \quad +6 \end{array}$$

$$\frac{-3y}{-3} = \frac{15}{-3}$$

$$y = -5$$

$$\boxed{(-6, -5)}$$

12) $4x - 8y = 24$ ①

$$-x + 16y = -20$$
 ②

$$\begin{array}{r} 4x - 8y = 24 \\ -4x + 64y = -80 \end{array}$$

$$\frac{-56y}{56} = \frac{-56}{56}$$

$$y = -1$$

$$4x - 8(-1) = 24$$

$$4x + 8 = 24$$

$$\frac{-8}{-8} = \frac{-8}{-8}$$

$$\frac{4x}{4} = \frac{16}{4}$$

$$x = 4$$

$$\boxed{(4, -1)}$$

Answers to Homework 27.2

1) $(p+10)(p+7)$

5) $(n-5)(n-8)$

9) $(4x+3)(4x-3)$

2) $(n+5)(n-6)$

6) $(r+2)(r+6)$

10) $(2n+5)(2n-5)$

3) $(n-8)(n+4)$

7) $(a+4)(a-4)$

11) $(-6, -5)$

4) $(r-2)(r+10)$

8) $(n+1)(n-1)$

12) $(4, -1)$