

**Summer Assignment****Factor the common factor out of each expression.**

1)  $15x^2 + 25x$

2)  $-16m^5 + 20m$

3)  $30y^7x^2 + 50y^7 + 30y^5$

**Factor each completely.**

4)  $x^2 + 7x - 18$

5)  $p^2 + 10p + 9$

6)  $25m^2 + 15m - 70$

7)  $2m^2 + 9m$

8)  $15x^2 + 130x - 200$

9)  $8x^2 + 34x + 21$

$$10) 9r^2 - 12r + 4$$

$$11) 9p^2 - 60p + 100$$

$$12) 49 + 126x + 81x^2$$

$$13) 27x^2 + 144x + 192$$

$$14) r^2 - 9$$

$$15) 25n^2 - 1$$

**Simplify.**

$$16) 4\sqrt{15} \cdot \sqrt{15}$$

$$17) 3\sqrt{20} \cdot 3\sqrt{10}$$

$$18) 4\sqrt{10} \cdot 5\sqrt{6}$$

$$19) \sqrt{10} \cdot \sqrt{8}$$

$$20) \sqrt{6}(5 + \sqrt{2})$$

$$21) \sqrt{10}(\sqrt{5} - 3\sqrt{2})$$

$$22) -3\sqrt{15}(-\sqrt{6} + \sqrt{5})$$

$$23) \sqrt{80}$$

$$24) \sqrt{30}$$

$$25) \sqrt{125}$$

$$26) \sqrt{48}$$

$$27) \sqrt{18}$$

$$28) 7\sqrt{45m^5}$$

$$29) 9\sqrt{180n^3}$$

$$30) 9\sqrt{128b^3}$$

$$31) -3\sqrt{441a^4}$$

**Simplify. Your answer should contain only positive exponents.**

$$32) 3x \cdot 2x^{-2} \cdot (x^2)^2$$

$$33) (k^3)^2 \cdot k^{-3}$$

$$34) (3p^2 \cdot 2p^2)^3$$

$$35) 3x^2 \cdot (2x)^{-3}$$

$$36) 2mn^2$$

$$37) -2y^{-2} \cdot (2xy^{-2})^3 \cdot x^4y^4$$

$$38) -2x^3y^2 \cdot (-2y^3)^{-3}$$

$$39) 2x^{-4} \cdot -2x^5y^{-2} \cdot (-xy^0)^0$$

$$40) (-x^{-2}y^{-3} \cdot -2xy^2)^2$$

$$41) (-yx^4)^3 \cdot (-yx^4)^4$$

**Find each quotient.**

$$42) \frac{-1}{\frac{17}{9}}$$

$$43) \frac{4\frac{1}{2}}{-1\frac{1}{6}}$$

$$44) \frac{3\frac{7}{9}}{-\frac{11}{9}}$$

$$45) \frac{-0.7}{-2}$$

$$46) \frac{10.2}{-0.4}$$

$$47) \frac{2.9}{2}$$

**Solve each system by substitution.**

$$\begin{aligned} 48) \quad y &= 4x - 9 \\ y &= -4x + 7 \end{aligned}$$

$$\begin{aligned} 49) \quad y &= -4x + 7 \\ y &= 3x \end{aligned}$$

$$\begin{aligned} 50) \quad -3x + 3y &= -9 \\ -4x - 3y &= 2 \end{aligned}$$

$$\begin{aligned} 51) \quad -4x - 3y &= 1 \\ -3x - 4y &= -1 \end{aligned}$$

**Solve each system by elimination.**

$$\begin{aligned} 52) \quad 3x + 2y &= -9 \\ -10x - 2y &= 16 \end{aligned}$$

$$\begin{aligned} 53) \quad 9x + y &= -26 \\ x + y &= -2 \end{aligned}$$

$$\begin{aligned} 54) \quad 4x + 8y &= 28 \\ 2x + 2y &= 8 \end{aligned}$$

$$\begin{aligned} 55) \quad -5 - 25y &= 20x \\ -3 - 12x &= 15y \end{aligned}$$