

1 $A \cap B = \{5, 8\}$

2 $(-3)^4 - 2(-2)^3 = 81 + 16 = 97$

3a $24p^2 - 15p - 15p^2 + 10p - 20 = 9p^2 - 5p - 20$

3b $10w^2 + 3w - 18$

3c $u^2 + 2uv - 3ku - uv - 2v^2 + 3kv + ku + 2kv - 3k^2$
 $u^2 + uv - 2ku - 2v^2 + 5kv - 3k^2$

4
$$\begin{array}{r} 2x^2 - x - 5 \\ x-5 \overline{) 2x^3 - 11x^2 + 0x + 28} \\ \underline{-2x^3 + 10x^2} \\ -x^2 + 0x \\ \underline{-x^2 + 5x} \\ -5x + 28 \\ \underline{-5x + 25} \\ 3 \end{array} \left. \vphantom{\begin{array}{r} 2x^2 - x - 5 \\ x-5 \overline{) 2x^3 - 11x^2 + 0x + 28} \\ \underline{-2x^3 + 10x^2} \\ -x^2 + 0x \\ \underline{-x^2 + 5x} \\ -5x + 28 \\ \underline{-5x + 25} \\ 3 \end{array}} \right\} 2x^2 - x - 5 + \frac{3}{x-5}$$

5a $(3x - 7)(2x - 1)$

5b $3m(5p + 3q) - 2n(5p + 3q) = (5p + 3q)(3m - 2n)$

5c $(10x)^3 + (7y)^3 = (10x + 7y)(100x^2 - 70xy + 49y^2)$

6a $\frac{x(x+1)}{5} \cdot \frac{25^5}{y(x+1)} = \frac{x}{1} \cdot \frac{5}{y} = \frac{5x}{y}$

6b $\frac{3k}{(k+4)(k-3)} \cdot \frac{k-4}{k-4} - \frac{k}{(k+4)(k-4)} \cdot \frac{k-3}{k-3}$
 $= \frac{3k^2 - 12k - k^2 + 3k}{(k+4)(k-4)(k-3)} = \frac{2k^2 - 9k}{(k+4)(k-4)(k-3)}$

7 $\frac{\frac{h}{g} + \frac{g}{h}}{1 - \frac{2}{gh}} \cdot \frac{gh}{gh} = \frac{h^2 + g^2}{gh - 2}$

8 $\frac{4n^9}{3m^8}$

9 $p^{-7/4}(p-2)$

10a $2x^2 z^4 \sqrt{2x}$

10b $u^{9/5} = u^{3/5} = \sqrt[5]{u^3}$

10c $\frac{\sqrt{2}}{\sqrt{3y}} \cdot \frac{\sqrt{3y}}{\sqrt{3y}} = \frac{\sqrt{6y}}{3y}$

11 $\frac{\sqrt{5}(\sqrt{3} + \sqrt{5})}{3-5} = \frac{\sqrt{15} + 5}{-2} = -\frac{5 + \sqrt{15}}{2}$

12 $-6x + 30 + 8x - 48 = 2x - 18 \Rightarrow -18 = -18$
 Identity. Solution set \mathbb{R}

13 $ax - bx = -a^2 - b^2 \Rightarrow x = \frac{-a^2 - b^2}{a - b} \Rightarrow$
 $x = \frac{a^2 + b^2}{b - a}$

14

	rate	time	dist.
With Wind	$180 + r$	2.8	$2.8(r + 180)$
Against Wind	$180 - r$	3	$3(180 - r)$

Eg: $2.8(r + 180) = 3(180 - r) \Rightarrow$
 $2.8r + 504 = 540 - 3r \Rightarrow$
 $5.8r = 36 \Rightarrow r = \frac{36}{5.8} \approx 6.21 \text{ mph.}$

15 Let $x = \text{Amt. at } 4.5\%$
 $0.045x + 0.032(2x) = 1280 \Rightarrow$
 $0.109x = 1280 \Rightarrow x = \$11,743.12$
 So: $\$11,743.12$ at 4.5%
 $\$23,486.24$ at 3.2%