

1) a $\{3, 2, 7, -3\}$
 b $\{2, -4, 6, 12, -2\}$
 c NO
 d 12

2a -2
 b -14

3) $y \sim x$ $y = -4x$
 $y = kx$ $y = -4(-5)$
 $16 = k(-4)$ $y = -20$
 $-4 = k$

4) $y \sim \frac{1}{x}$
 $y = \frac{k}{x}$
 $33 = \frac{k}{5}$
 $99 = k$
 $y = \frac{99}{x}$
 $-11 = \frac{99}{x}$
 $x = \frac{99}{-11}$
 $x = -9$

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5) a) 38 b) 2 c) 134 d) 4032

6) 60
 7) $9x^2y^3$
 8) $\frac{\sqrt{97x^{12}y^{14}xy}}{3x^4y^7\sqrt{7xy}}$

9) $-30a^2b''\sqrt{2ab}$
 10) $4\sqrt{5}$
 11) $5 \cdot 2\sqrt{3xy} - 4\sqrt{3xy} + 8 \cdot 3\sqrt{3xy}$
 $30\sqrt{3xy}$

12) $\sqrt{18} + 5\sqrt{42}$
 $3\sqrt{2} + 5\sqrt{42}$
 13) $-5\sqrt{18} - 10\sqrt{108}$
 $-15\sqrt{2} - 60\sqrt{3}$

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14) $(5\sqrt{6})^2 - (\sqrt{7})^2$
 $25 \cdot 6 - 7 = 143$

15) $(\sqrt{5} - 12\sqrt{3})(\sqrt{5} - 12\sqrt{3})$
 $5 - 12\sqrt{15} - 12\sqrt{15} + 144 \cdot 3$
 $437 - 24\sqrt{15}$

16) $\frac{100}{4\sqrt{5}} = \frac{25\sqrt{5}}{\sqrt{5}} = \frac{25\sqrt{5}}{5}$

17) $\frac{18ab}{3b^2c^2\sqrt{c}}$
 $\frac{6a}{bc^2\sqrt{c}} \cdot \frac{\sqrt{c}}{\sqrt{c}}$
 $\frac{6a\sqrt{c}}{bc^3}$

18) $\frac{24x^4y^5}{3\sqrt{6}x^2\sqrt{6}y^5} = \frac{8x^3\sqrt{6x}}{\sqrt{6x}} = \frac{8x^3\sqrt{6x}}{6x} = \frac{4x^2\sqrt{6x}}{3}$

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26) $y = -x^2 - 2x + 8$
 $x = \frac{-2}{2(-1)} = -1$
 $y = -(-1)^2 - 2(-1) + 8$
 $y = -1 + 2 + 8$
 $y = 9$
 $V = (-1, 9)$

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