

1. $f(x) = \frac{a}{c}$ $g(x) = \frac{b}{c}$ $f(\pi) = \frac{a}{c}$ $g(\pi) = \frac{b}{c}$ $[f(\pi)]^2 = \frac{a^2}{c^2}$ $[g(\pi)]^2 = \frac{b^2}{c^2}$
 $a^2 + b^2 = c^2 \therefore \frac{a^2}{c^2} + \frac{b^2}{c^2} = \frac{a^2 + b^2}{c^2} = \frac{c^2}{c^2} = 1$

2. $z^2 = z^3$ $z^3 - z^2 = 0$ $z^2(z-1) = 0$ $z = 0$ or $z = 1$ $(\frac{0+0+0}{9})^2 = 0$ $(\frac{1+1+1}{9})^2 = \frac{1}{9}$

3. ~~0 and 30~~ 0 and 30

4. $m = \frac{9}{3} = 3$ $m_1 = -\frac{1}{3}$ $x + 3y = 3 - 6$ $x + y = -3$ $x + 3y + 3 = 0$

5. $(a-b)(a^2-b^2)(a^3-b^3) = (a-b)(a-b)(a+b)(a-b)(a^2+ab+b^2) = \textcircled{5}$

6. (2, 5) (7, 3) $m = -\frac{2}{5}$ $2x + 5y = 29$ $2(35) + 5y = 29$ $5y = -41$ $y = -\frac{41}{5}$

7. Kay $x+5$ $4x+20$ $6x = 4x+20$ $2x = 20$ $x = 10$
 Charles $6x$

8. $x + x + 2 > 98 - 2(x + 2)$ $2x + 2 > 98 - 2x - 4$ $4x > 92$ $x > 23$

$\therefore 24, 26$

9. $5x + 3y = -3$ $15x + 9y = -9$ $23x = -69$ $-15 + 3y = -3$
 $8x - 9y = -60$ $8x - 9y = -60$ $x = -3$ $3y = 12$ $y = 4$

10. $\frac{1 \text{ km}}{1 \text{ cm}}$ $25 \text{ cm} = .000025 \text{ km}$ or $\frac{1}{40,000}$

11. $\sqrt{2x-1} = \sqrt{x+4}$ $2x-1 = x+4$ $x = 5$

12. $x^2 + 3x + 4 = x^2 - 2x - 8$ $3x + 4 = -2x - 8$ $5x = -12$ $x = -\frac{12}{5}$

$x^2 + 3x + 4 = -x^2 + 2x + 8$ $2x^2 + x - 4$ $\frac{-1 \pm \sqrt{1 - 4(2)(-4)}}{4} = \frac{-1 \pm \sqrt{33}}{4}$

13. $\frac{p-q}{r} = \frac{p-r}{r}$ $pr - rq = rq - rq$ $pr = rq$ $p = \frac{rq}{r}$ $\frac{p}{r} = \frac{q}{r^2}$

14. $6 \leq 18 - 3x \leq 10$ $6 \leq -18 + 3x \leq 10$
 $-12 \leq -3x \leq -8$ $24 \leq 3x \leq 28$
 $4 \geq x \geq \frac{8}{3}$ or $8 \leq x \leq \frac{28}{3}$

15. $((30+20)^3)^{\frac{1}{3}} = (30+20) = 50$