Quiz 1

1. $81x^2-18 + 1 = 0$

$x^2 - 18x + 81 = 0$

$(x-9)(x-9)=0$

$x=9$

2. $-2 \le 3x - 2 \le 7$

$0 \le 3x \le 9$

$0 \le x \le 3$

$[0,3]$

3. $25x^2 + 9 = 30x$

$25x^2 - 30x + 9 = 0$

$(5x-3)(3x-5)=0$

$x = \frac{3}{5}, \frac{5}{3}$

4. $\left(\frac{3}{4}p = \frac{4}{5}p + \frac{5}{2}\right)^{20}$

$15p = 16p + 50$

$-p = 50$

$p = -50$

5. $Q = \frac{c}{1-u}$ solve for u

$Q - Qu = c$

$-Qu = c - Q$

$u = \frac{c-Q}{-Q}$

6. $5x^2 = 3 - 6x$

$5x^2 + 6x - 3 = 0$

$\frac{-6\pm\sqrt{96}}{10} \rightarrow \frac{-6\pm4\sqrt{6}}{10}$

$x = \frac{-3\pm2\sqrt{6}}{5}$

7. $-4(4x - 4) < -16$

$-16x + 16 < -16$

$-16x < -32$

$x > 2 \quad (2,\infty)$

8. $x^2 - 100 = 0$

$(x-10)(x+10)=0$

$x = -10, 10$

9. $\left(\frac{1}{2} + \frac{6}{x} = \frac{5}{4}\right)^{8x}$

$4x + 48 = 10x$

$-6x = -48$

$x = 8$

10. $\left(\frac{1}{5}(x - 12) < x + 16\right)^{5}$

$x-12 < 5x+92$

$-4x < 92$

$x > -23 \quad (-23,\infty)$

11. $3x^2 - 48 = 0$

$3(x^2 - 16) = 0$

$3(x-4)(x+4)=0$

$x = -4, 4$

12. $\left(\frac{1}{r} + \frac{1}{s} = \frac{1}{b}\right)^{rsb}$

$sb + rb = rs$

$b(s + r) = rs$

$x = \frac{rs}{s+r}$

13. $49x^2 - 42x + 9 = 0$

$(7x - 3)(7x - 3)= 0$ *same signs*

21 *add*

21

$7x-3 = 0 \quad 7x - 3 = 0$

$x = \frac{3}{7}$

first sign goes in second parenthesis

14. $42x^2 - 13x - 42 = 0$

$(7x +6)(6x - 7)= 0$ *different signs*

36 *subtract*

42

$7x+6 = 0 \quad 6x-7 = 0$

$x = -\frac{6}{7}, \frac{7}{6}$

15. The perimeter of a rectangle is 40ft, width is 4 more than the length.

Find the dimensions. $P = 40$ $w = \ell + 4$ $P = 2w + 2\ell$

$40 = 2(\ell + 4) + 2\ell$

$40 = 2\ell + 8 + 2\ell$

$40 = 4\ell + 8$ $32 = 4\ell$ $\ell = 8$ $w = 12$