Math 111/33 Background Topics – Set 1

Topic: Solving 1-variable equations

1. Solve: $15 + x = 37$

$-15 \quad -15$

$x = 22$

2. Solve: $6p = 20$

$\frac{6}{} \quad \frac{6}{}$ OK OK

$p = \frac{20}{6} = \frac{10}{3} = 3\frac{1}{3}$

3. Solve: $3x + 46 = 19$

$-46 \quad -46$

$3x = -27$

$x = -9$

$46 - 19 = 27$

4. Solve: $3x - 22 + 4x = 6$

put together same side of =

$7x - 22 = 6$

$7x = 28$

$x = 4$

5. Solve: $2x - 16 = 8x - 40$

$-2x \quad -2x$ ↑ opposite sides ↑ get rid of one

$-16 = 6x - 40$

$+40 \quad +40$

$24 = 6x, \; x = 4$

6. Solve: $\frac{3}{4}x = \frac{15}{16}$

$\frac{4}{3}\left(\frac{3}{4}\right)x = \frac{15}{16}\left(\frac{4}{3}\right)$ (5) (4)

$x = \frac{5}{4}$

7. Solve the proportion: $\frac{24}{90} = \frac{x}{12}$

$90x = (12)(24) = 288$

$x = \frac{288 \div 2}{90 \div 2} = \frac{144 \div 3}{45 \div 3} = \frac{48 \div 3}{15 \div 3} = \frac{16}{5}$

8. Solve: $x + 1.2 - 0.6x = 4$

$1.0x - .6x + 1.2 = 4$

$.4x + 1.2 = 4$

$-1.2 \quad -1.2$

$\frac{.4x}{.4} = \frac{2.8}{.4} \quad x = 7$

9. Translate and solve: 7 less than the product of 2 and a number equals that number plus 25. Find the number.

$2x - 7 = x + 25$

$-x \quad -x$

$x - 7 = 25$

$x = 32$

1. $x = 22$
2. $p = 10/3$ or $3\frac{1}{3}$
3. $x = 9$
4. $x = 4$
5. $x = 8$
6. $x = 15/16$
7. $x = 32$

Answers