Feb 19- bell ringer

① $(3-\sqrt{5})^2 = 14-6\sqrt{5}$

② $5\sqrt{\frac{2}{3}} - \frac{\sqrt{6}}{5}$

$\frac{5\sqrt{2}\cdot\sqrt{3}}{\sqrt{3}\sqrt{3}} \quad \frac{-\sqrt{6}}{5}$

$\frac{5\sqrt{6}}{3} - \frac{\sqrt{6}}{5}$

$\frac{25\sqrt{6}}{15} - \frac{3\sqrt{6}}{15} = \frac{22\sqrt{6}}{15}$

Learning target:

You can ~~sole exactions~~ solve equations that contain radicals(square roots).

Simplify.

1) $(\sqrt{x})^2 = x$

2) $(\sqrt{x+2})^2$

$x+2$

3) $(\sqrt{2x-3})^2 = 2x-3$

4) $(2+\sqrt{x})^2$

$4+4\sqrt{x}+x$

$(\sqrt{x+3})(\sqrt{x+2})$

$\sqrt{(x+2)(x+2)}$ or $\sqrt{(x+2)^2}$

Solve.

1) $(\sqrt{x})^2 = (5)^2$

$x = 25$

2) $(\sqrt{n-5})^2 = (2\sqrt{3})^2$

$n - 5 = 12$

$n = 17$

3) $\sqrt{x-3} + 8 = 15$

$-8 \quad -8$

$(\sqrt{x-3})^2 = 7^2$

$x - 3 = 49$

$\boxed{x = 52}$

4) $(y)^2 = (\sqrt{12-y})^2$

$y^2 = 12 - y$

$y^2 + y - 12 = 0$

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

$y = \sqrt{12-y}$

$-4 = -\sqrt{12+4}$

$-4 = -\sqrt{16}$

$y = -4$ or $y = 3$

extraneous

5) $(\sqrt{t+5})^2 = (t+3)^2$ ✓

$t+5 = t^2+6t+9$

$-t \quad -5 \qquad -t \quad -5$

$0 = t^2+5t+4$

$0 = (t+4)(t+1)$

$t = -4$ or $t = -1$

extraneous

61 $\sqrt{\frac{5y}{6}} - 10 = 4$

$+10 \quad +10$

$\left(\sqrt{\frac{5y}{6}}\right)^2 = (14)^2$

$\frac{6}{5} \cdot \frac{5y}{6} = 196 \cdot \frac{6}{5}$

$y = \frac{1176}{5}$

7) $\left(\sqrt{x^2+9x+15}\right)^2 = (x+5)^2$

$x^2+9x+15 = x^2+10x+25$

$-x^2 \quad -10x \quad -15 \quad -x^2 \quad -10x \quad -15$

$-x = 10$

$x = -10$

extraneous

No Solution

8) $\sqrt{4a} = -1$

No Solution

9) $5\sqrt{a-3}+4=14$

$-4 \quad -4$

$$\frac{5\sqrt{a-3}}{5}=\frac{10}{5}$$

$$(\sqrt{a-3})^2=(2)^2$$

$$a-3=4$$

$+3 \quad +3$

$$a=7$$

10) $\left(\sqrt{r+3}\right)^2 = (r-3)^2$

$r+3 = r^2-6r+9$

$-r \quad -3 \qquad\qquad -r \quad -3$

$0 = r^2 - 7r + 6$

$0 = (r-6)(r-1)$

$r = 6 \quad$ or $\quad r = 1$

extraneous

11) $\left(\sqrt{x+16}\right)^2 = \left(8-\sqrt{x}\right)^2$

$x+16 = (8-\sqrt{x})(8-\sqrt{x})$

$x+16 = 64 - 16\sqrt{x} + x$

$-x \quad -64 \quad -64 \qquad\qquad -x$

$\frac{-48}{-16} = \frac{-16\sqrt{x}}{-16}$

$(3)^2 = (\sqrt{x})^2$

$\boxed{x=9}$

Assignment

p. 644

2-26E, omit #8