How many ounces of pure water must be added to 60 oz. of a 7.5% salt solution to make a 5% salt solution?

type of substance	amount of solution	% concentration of salt	amount of salt
7.5% sol'n	60 oz.	0.075	60(0.075)
water	x	0	0
5% sol'n	60 + x	0.05	(60+x)0.05

$60(0.075) = (60+x)0.05$

$0.075 \times 60 = 4.500$

$4.5 = 3 + 0.05x$

$0.05 \times 60 = 3.00$

$1.5 = 0.05x$

$\frac{1.5}{0.05} = \frac{0.05x}{0.05}$

$30 \text{ oz} = x$

Test 3 #17

$(3x^3 + 10x^2 + 6x - 3) \div (x+2)$

$-2 \mid 3 \quad 10 \quad 6 \quad -3$

$\quad\quad -6 \quad -8 \quad 4$

$\quad 3 \quad 4 \quad -2 \mid 1$

$x^3 \quad x^2 \quad x \quad c \quad \text{rem}$

Rem: 1

Quotient: $3x^2 + 4x - 2$

$$\begin{array}{r} 3x^2 + 4x - 2 \\ x+2 \overline{)\,3x^3 + 10x^2 + 6x - 3} \\ -(3x^3 + 6x^2) \\ \hline 4x^2 + 6x - 3 \\ -(4x^2 + 8x) \\ \hline -2x - 3 \\ -(-2x - 4) \\ \hline 1 \end{array}$$

Quotient: $3x^2 + 4x - 2$; Remainder: 1

4.2

11. $(2x+5y=9)(-2)$

$-4x-10y=-18$

$4x-7y=-16$

$-17y=-34$

$y=2$

$2x+5(2)=9$

$2x+10=9$

$2x=9-10$

$2x=-1$

$x=\frac{-1}{2}$

$\left(-\frac{1}{2},2\right)$

7.2 #119

$$\frac{4-\sqrt{2}}{2-\sqrt{3}}\cdot\frac{2+\sqrt{3}}{2+\sqrt{3}}=\frac{8+4\sqrt{3}-2\sqrt{2}-\sqrt{6}}{4+2\sqrt{3}-2\sqrt{3}-3}$$

$$=\frac{8+4\sqrt{3}-2\sqrt{2}-\sqrt{6}}{1}$$

$$\frac{5}{\sqrt{2x}}\cdot\frac{\sqrt{2x}}{\sqrt{2x}}=\frac{5\sqrt{2x}}{2x}$$

7.2 #19

$\sqrt[3]{-216x^5y^9}$

$(-2)^3 \cdot 3^3 x^3 x^2 (y^3)^3$

$= (-2) \cdot 3 \cdot x \cdot y^3 \sqrt[3]{x^2}$

$= \boxed{-6xy^3\sqrt[3]{x^2}}$

$216 = 2 \cdot 2 \cdot 6 \cdot 9$

$2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 \cdot 3$

$2^3 \quad 3^3$

108

$2\overline{)216}$

54

$2\overline{)108}$

7.2

13. $\sqrt{8a^3b^8}$

$2 \cdot 4 \; a \cdot a^2 \; (b^4)^2$

$2 \cdot 2^2$

$2|a|b^4\sqrt{2a}$

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

$\sqrt[n]{x^n} = x$

8.2

69. $8s^2 = 10s + 3$

$8s^2 - 10s - 3 = 0$

$a=8, b=-10, c=-3$

$$s = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(8)(-3)}}{2(8)}$$

$$= \frac{10 \pm \sqrt{100+96}}{16} = \frac{10 \pm \sqrt{196}}{16} = \frac{10 \pm 14}{16}$$

$\frac{10+14}{16}$ & $\frac{10-14}{16}$

$\frac{24}{16} = \frac{3}{2}$ $\quad \frac{-4}{16} = \boxed{-\frac{1}{4}}$

98
$2\overline{)196}$
-18
16

$2 \cdot 2 \cdot 49$
$2^2 \quad 7^2$
14^2

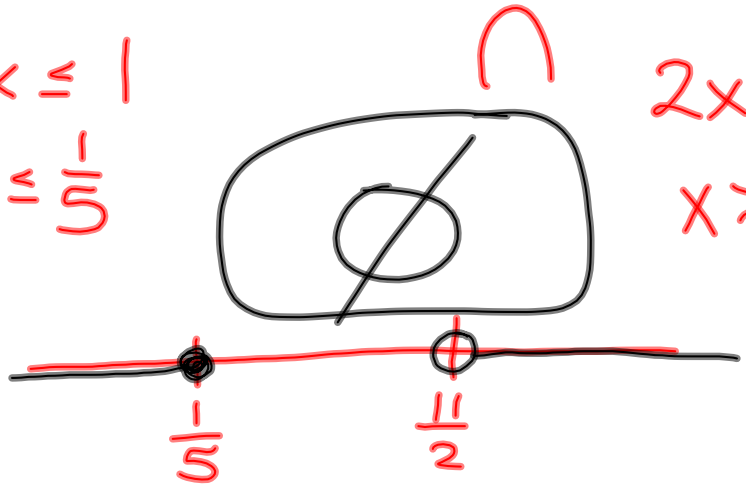
$5x + 2 \leq 3$ and $2x - 7 > 4$

$5x \leq 1$

$x \leq \frac{1}{5}$

$2x > 11$

$x > \frac{11}{2}$



or ⇒ ∪

"or" $\{x \mid x \leq \frac{1}{5} \text{ or } x > \frac{11}{2}\}$

$(-\infty, \frac{1}{5}] \cup (\frac{11}{2}, \infty)$

$y - y_1 = m(x - x_1)$

slope: -2

$(5, -1)$

$y - (-1) = -2(x - 5)$

$y + 1 = -2x + 10$

$\boxed{y = -2x + 9}$

distance betw.

$(-2, 5)$ & $(3, 7)$

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = d$$

$$= \sqrt{(-2-3)^2 + (5-7)^2}$$

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

$$= \sqrt{25 + 4} = \boxed{\sqrt{29}}$$

7.2

43. $\sqrt[3]{128} + \sqrt[3]{250}$

$2 \cdot 64$

$2 \cdot 4^3$

$25 \cdot 10$

$5 \cdot 5 \cdot 5 \cdot 2$

$5^3 \cdot 2$

$4\sqrt[3]{2} + 5\sqrt[3]{2}$

$9\sqrt[3]{2}$

47. $3\sqrt[3]{x^5y^7} - 8xy\sqrt[3]{x^2y^4}$

$x^3 x^2$ $\quad y^6 \cdot y$ $\quad (y^2)^3 \cdot y$ $\quad y^3 \cdot y$

$3xy^2\sqrt[3]{x^2y} - 8xy^2\sqrt[3]{x^2y}$

$= -5xy^2\sqrt[3]{x^2y}$