LESSON 122

1.	$3\sqrt{3}$	**2.**	$2x^2$	**3.**	-4	**4.**	$3-\sqrt{7}$
5.	B	**6.**	$x=4$	**7.**	$x=13$		
8.	$f(x)=\sqrt{x+2}+1$			**9.**	C	**10.**	5 feet

Worked-out solutions:

1. $\sqrt{27}=\sqrt{9\cdot 3}=\sqrt{9}\cdot\sqrt{3}=3\sqrt{3}$

2. $\sqrt[3]{8x^6}=\sqrt[3]{8\cdot(x^2)^3}=\sqrt[3]{8}\cdot\sqrt[3]{(x^2)^3}=2x^2$

3. $\sqrt{2}\cdot\sqrt{8}-2\sqrt{18}+\sqrt{50}$

$=\sqrt{16}-6\sqrt{2}+5\sqrt{2}=4-\sqrt{2}$

$ab=(4)(-1)=-4$

4. $\dfrac{2}{3+\sqrt{7}}=\dfrac{2}{3+\sqrt{7}}\cdot\dfrac{3-\sqrt{7}}{3-\sqrt{7}}=\dfrac{2\left(3-\sqrt{7}\right)}{9-7}=3-\sqrt{7}$

5. A) $4^{3/2}=(2^2)^{3/2}=2^3=8$

B) $9^{3/2}=(3^2)^{3/2}=3^3=27$

C) $16^{3/4}=(2^4)^{3/4}=2^3=8$

D) $64^{2/3}=(4^3)^{2/3}=4^2=16$

6. $\sqrt{8-x}=x-2$

$8-x=(x-2)^2$ Square both sides.

$x^2-3x-4=0$ Write in standard form.

$(x+1)(x-4)=0$ Sove for x.

$x=-1, x=4$

$x=-1$ is extraneous, so the solution is $x=4$.

7. $(x-5)^{1/3}-2=0$

$(x-5)^{1/3}=2$ Isolate the power.

$\left[(x-5)^{1/3}\right]^3=2^3$ Cube both sides.

$x-5=8$ Simplify.

$x=13$ Sove for x.

8. $y=\sqrt{x}$ Parent function

$y=\sqrt{x+2}$ Shift left 2 units.

$f(x)=\sqrt{x+2}+1$ Shift up 1 unit.

9. The graph involves a reflection of $y=\sqrt[3]{x}$ over either the x- or y-axis, so eliminate A and B.

$(0,1)$ is on the graph, so choose C.

10. The ladder, wall, and ground form a right triangle.

Hypotenuse $=13$, Legs $=12$ and x

By The Pythagorean Theorem, $12^2+x^2=13^2$.

Solve for x, and you get $x=5$.

The bottom is 5 feet from the wall.