Lesson 4

1) $\frac{1}{2}+\frac{1}{3}=\frac{3}{6}+\frac{2}{6}=\frac{5}{6}$

$\frac{6}{6}-\frac{5}{6}=\frac{1}{6}$

2) 12:00 - 7:30 = 4:30

4:30 + 3:00 = 7:30 hours worked

7.5 x 4.65 = $34.875 or $34.88 earned

3) $\frac{3}{4}=\frac{15}{20}$ or $\frac{30}{40}$; $\frac{4}{5}=\frac{16}{20}$ or $\frac{32}{40}$

$\frac{31}{40}$

4) $\frac{3}{4}=\frac{18}{24}$; $\frac{5}{6}=\frac{20}{24}$

We can see at a glance that A) $\frac{19}{24}$ is an answer.

Check other fractions by using the rule of 4 to compare each with the two given fractions.

E also falls between the given fractions.

$\frac{3}{4}\Leftrightarrow\frac{11}{14}$, $\frac{42}{56}\Leftrightarrow\frac{44}{56}$

$\frac{5}{6}\Leftrightarrow\frac{11}{14}$, $\frac{66}{84}\Leftrightarrow\frac{70}{84}$

Or, change each fraction to a decimal for easy comparison.

5) it will be quadrupled:

$3.14(5^2)$ = 78.5 sq. ft.

$3.14(10^2)$ = 314 sq. ft.

314 ÷ 78.5 = 4

6) 12 x 22 = 264 sq. in

7) rectangle:

18 x 30 = 540 sq. in.

paralellogram:

8 x 15 = 120 sq. in.

540 - 120 = 420 sq. in

8) area of square:

36 x 36 = 1,296 sq. cm

semicircles:

$1/2(3.14)(5^2)$ = 39.25 sq. cm

39.25 x 4 = 157 sq. cm

1,296 - 157 = 1,139 sq. cm

Lesson 5

1) $1.00

5 x $1.00 = $5.00

2) $2.00 the first day
$4.00 the second day
$16.00 the third day
$256.00 the fourth day
$65,536.00 the fifth day
$65,814.00 total

3) 3 x 2 = 6 sq. units
9 x 4 = 36 sq. units

4) Sketches and dimensions will vary. The student should notice that when the dimensions are squared, the area will be squared.

5) Sketches and dimensions will vary the student should notice that when the dimensions are cubed, the area will be cubed.

6) Area = base x height, so the area of this rectangle will be ab. If the length and the width of the rectangle are both cubed, the new area will be a^3b^3, which can also be expressed as $(ab)^3$.

7) If the radius is doubled, the area will increase four- fold

8) Ex.: r = 2, A = 3.14(4) = 12.56 r^2 =4, A = 3.14(16) = 50.24

new area is 4 times original area

If you start with a radius of 3 and square it, the new area will be 9 times the original area. Squaring the radius of a circle causes the area to increase by a factor of r^2.

9) $A = 10\left(\frac{20+15}{2}\right)$

$= 10\left(\frac{35}{2}\right)$

$= \frac{350}{2} = 175$ sq. in.

10) Trapezoid: $12\left(\frac{21+26}{2}\right) = 12\left(\frac{47}{2}\right) = 6(47) = 282$ sq. cm

Large semicircle: $\frac{3.14(6)^2}{2} = \frac{3.14(36)}{2} = 3.14(18) = 56.52$ sq. cm

Small semicircle: $\frac{3.14(2)^2}{2} = \frac{3.14(4)}{2} = \frac{12.56}{2} = 6.28$ sq. cm

282 - 56.52 - 6.28 = 219.2 sq. cm