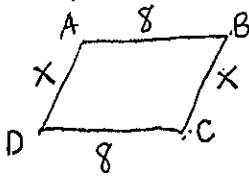


Unit F Exam Review

1. The perimeter of a parallelogram $ABCD$ is 60 with $AB = 8$. Find BC .



$$8 + 8 + x + x = 60$$

$$16 + 2x = 60$$

$$\begin{array}{r} -16 \\ \hline 2x = 44 \\ \hline x = 22 \end{array}$$

2. The perimeter of a regular heptagon is 42 feet. What is the length of one side?

$$42 / 7 = 6 \text{ ft}$$

3. Could the numbers 12, 35, and $\overset{c}{37}$ be the lengths of the sides of a right triangle? Explain...

$$a^2 + b^2 = c^2$$

$$12^2 + 35^2 = 37^2$$

$$1369 = 1369$$

Yes, since $1369 = 1369$.

4. Could the numbers 12, 13, and $\overset{c}{18}$ be the lengths of the sides of a right triangle? Explain...

$$a^2 + b^2 = c^2$$

$$12^2 + 13^2 = 18^2$$

$$313 \neq 324$$

No, since $313 \neq 324$.

5. A triangle has an area of 44mm^2 and its height is 8mm . What is the length of the base?

$$A = \frac{1}{2} \cdot b \cdot h$$

$$44 = \frac{1}{2} \cdot b \cdot 8$$

$$\frac{44}{4} = \frac{4 \cdot b}{4}$$

$$b = 11 \text{ mm}$$

6. The bases of a trapezoid are 8 ft and 12 ft, and the trapezoid has an area of 70ft^2 . What is the length of the altitude of the trapezoid?

$$A = \frac{1}{2} \cdot h (b_1 + b_2)$$

$$70 = \frac{1}{2} \cdot h (8 + 12)$$

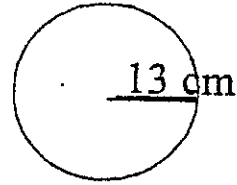
$$70 = \frac{1}{2} \cdot h \cdot 20$$

$$70 = 10 \cdot h$$

$$h = 7 \text{ ft}$$

7. For the circle at the right, find the exact π .

a. circumference $C = 2\pi r$
 $= 2 \cdot \pi \cdot 13$
 $= \boxed{26\pi} \approx 81.68$



b. area $A = \pi \cdot r^2$
 $= \pi \cdot 13^2$
 $= \boxed{169\pi} \approx 530.93$ $\rightarrow r = 6\text{cm}$

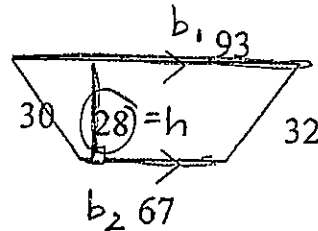
8. Give the circumference and area of a circle with diameter 12cm:

a. exactly $C = \pi \cdot d$ $A = \pi \cdot r^2$
 $= \pi \cdot 12$ & $= \pi \cdot 6^2$
 $\boxed{C = 12\pi}$ $\boxed{A = 36\pi}$

b. estimated to the nearest hundredth
 $C \approx 37.70$ & $A \approx 113.10$

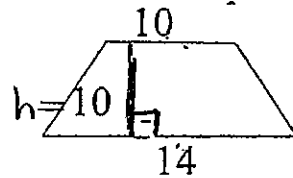
9. Find the area of the trapezoid at the right.

$A = \frac{1}{2} \cdot h (b_1 + b_2)$
 $A = \frac{1}{2} \cdot 28 (93 + 67)$
 $= \boxed{2,240 \text{ units}^2}$



10. Find the area of the trapezoid at the right.

$A = \frac{1}{2} \cdot h (b_1 + b_2)$
 $= \frac{1}{2} \cdot 10 (10 + 14)$
 $= \boxed{120 \text{ un.}^2}$



11. Give the exact circumference and area of a circle with diameter of 18.

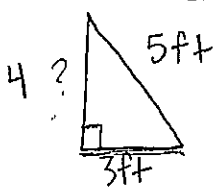
$C = 2 \cdot \pi \cdot r$
 $2 \cdot \pi \cdot 9 = \boxed{18\pi} \approx 56.5^\circ$

$A = \pi \cdot r^2$
 $\pi \cdot 9^2 = \boxed{81\pi} \approx 254.5^\circ$

12. The two legs of a right triangle have lengths 4.5 and 6. What is the perimeter of the triangle?

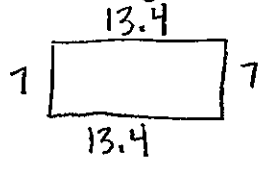
$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 4.5^2 + 6^2 &= c^2 \\
 56.25 &= c^2
 \end{aligned}
 \rightarrow
 \begin{array}{r}
 c = 7.5 \\
 + 4.5 \\
 + 6 \\
 \hline
 \end{array}
 \rightarrow \textcircled{18}$$

13. One leg of a right triangle has length 3 ft. The hypotenuse is 5 ft. What is its area?



$$\begin{aligned}
 A &= \frac{1}{2} \cdot b \cdot h \\
 &= \frac{1}{2} \cdot 3 \cdot 4 \\
 &= \textcircled{6 \text{ ft}^2}
 \end{aligned}
 \quad
 \begin{aligned}
 a^2 + b^2 &= c^2 \\
 3^2 + b^2 &= 5^2 \\
 9 + b^2 &= 25 \\
 -9 & \quad -9 \\
 \hline
 b^2 &= 16 \\
 \sqrt{b^2} &= \sqrt{16} \\
 b &= 4
 \end{aligned}$$

14. A rectangle has sides measuring 7 cm and 13.4 cm. Find the perimeter.



$$\begin{aligned}
 7 + 7 + 13.4 + 13.4 \\
 = \boxed{40.8 \text{ cm}}
 \end{aligned}$$

15. Find the perimeter of a regular hexagon with one side length measuring 9h.

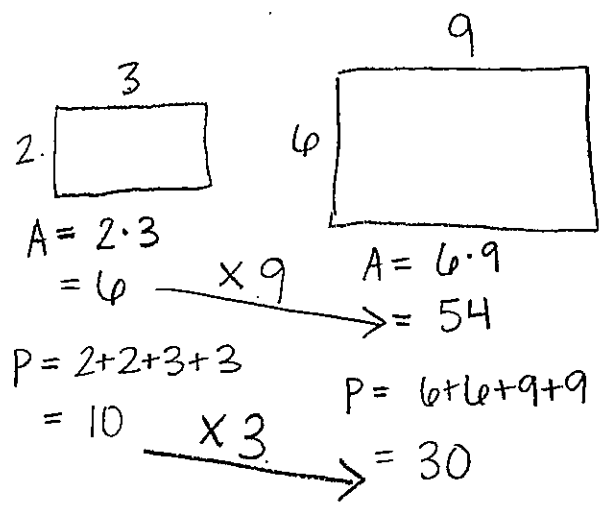
$$9h \cdot \overset{\text{6 sides}}{6} = \textcircled{54h \text{ units}}$$

16. The base of a triangle measures 8 and the altitude to that base measures 15. Find its area.

$$\begin{aligned}
 A &= \frac{1}{2} \cdot b \cdot h \\
 &= \frac{1}{2} \cdot 8 \cdot 15 \\
 &= \textcircled{60 \text{ units}^2}
 \end{aligned}$$

17. The length of each side of a rectangle is tripled.

- a. What happens to its area?
9 times bigger
- b. What happens to its perimeter?
3 times bigger



18. The area of a circle is 81π units². Find its **circumference**.

$$A = \pi \cdot r^2$$

$$\frac{81\pi}{\pi} = \frac{\pi \cdot r^2}{\pi} \rightarrow \sqrt{81} = \sqrt{r^2} \rightarrow 9 = r$$

$$C = 2 \cdot \pi \cdot r$$

$$= 2 \cdot \pi \cdot 9$$

$$= \boxed{56.55 \text{ units}}$$

19. The area of a circle is 100π units². Find its **circumference**.

$$A = \pi \cdot r^2$$

$$\frac{100\pi}{\pi} = \frac{\pi \cdot r^2}{\pi} \rightarrow \sqrt{100} = \sqrt{r^2} \rightarrow 10 = r$$

$$C = 2 \cdot \pi \cdot r$$

$$= 2 \cdot \pi \cdot 10$$

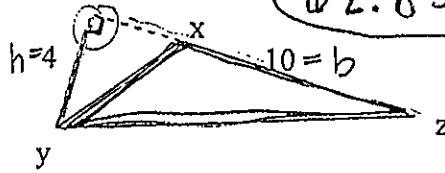
$$= \boxed{62.83 \text{ units}}$$

20. Find the area of ΔXYZ .

$$A = \frac{1}{2} \cdot b \cdot h$$

$$= \frac{1}{2} \cdot 10 \cdot 4$$

$$= \boxed{20 \text{ units}^2}$$



21. Find the area of ΔABC .

$$A = \frac{1}{2} \cdot b \cdot h$$

$$= \frac{1}{2} \cdot 2 \cdot 5$$

$$= \boxed{5 \text{ units}^2}$$

