REVIEW DRILL 2—THE BUILDING BLOCKS

1. If one-third of b is 15, then what is b?
2. If $7x - 7 = 49$, then what is x?
3. If $4(y - 5) = 20$, then what is y?
4. $8x + 1 < 65$. Solve for x.
5. 16 is what percent of 10?
6. What percent of 32 is 24?
7. What is the area of a triangle with base 7 and height 6?

(Middle and Upper Levels)

8. What is the diameter of a circle with an area of 49π?
9. What is the radius of a circle with a circumference of 12π?
10. What is the area of a circle with a diameter of 10?

Review Drill 2—The Building Blocks

1. 45

   Translate the problem: $\frac{1}{3}(b) = 15$. Multiply both sides by 3, and $b = 45$. Check your work by plugging in 45 for b: $\frac{1}{3}(45) = 15$.

2. 8

   To isolate x, add 7 to both sides. Then divide both sides by 7. Check your work by plugging in 8 for x: $7(8) - 7 = 49$.

3. 10

   To isolate y, divide both sides by 4. Then add 5 to both sides. Check your work by plugging in 10 for y: $4(10 - 5) = 20$.

4. $x < 8$

   To isolate x, subtract 1 from both sides. Then divide both sides by 8. The sign doesn't change!

5. 160

   Translation: $16 = \frac{x}{100}(10)$. To solve, simplify the right side: $\frac{x}{100}(10) = \frac{x(10)}{100} = \frac{10x}{100}$, which reduces to $\frac{x}{10}$. Then, multiply both sides by 10. Check your work by plugging in 160 for x.

6. 75

   Translation: $\frac{x}{100}(32) = 24$. To solve, simplify the left side of the equation: $\frac{x}{100}(32) = \frac{x(32)}{100} = \frac{32x}{100}$, which reduces to $\frac{8x}{25}$. Then multiply both sides by 25, and divide both sides by 8. Check your work by plugging in 75 for x.

7. 21

   Plug the base and height into the area formula for a triangle: $A = \frac{1}{2}bh = \frac{1}{2}(7)(6) = 21$.

8. 14

   Find the radius from a circle's area by getting rid of π and taking the square root of 49. Then multiply the radius by 2 to find the diameter.

9. 6

Find the radius from a circle's circumference ($C = 2\pi r$) by getting rid of π from both sides (they cancel out), which leaves $12 = 2r$. Divide both sides by 2. Check your work by plugging in 6 for the radius.

10. 25π

Be careful not to just fill in a familiar formula with the given numbers. Here, you aren't given r. Instead, you're given the diameter. Since $d = 2r$, the radius is 5 ($10 = 2r$). Plug the radius into the area formula for a circle: $A = \pi r^2 = \pi(5)^2 = 25\pi$.