Algebra Review: *Evaluating Formulas*

Evaluate each expression for the given values of the variables.

Example $\frac{1}{2}bh$ when $b = 12$ and $h = 6\sqrt{3}$ **Solution** $\frac{1}{2}(12)(6\sqrt{3}) = 36\sqrt{3}$

1. Area of a square: s^2 when $s = 1.3$
2. Length of hypotenuse of a right triangle: $\sqrt{a^2 + b^2}$ when $a = 15$ and $b = 20$
3. Perimeter of parallelogram: $2x + 2y$ when $x = \frac{5}{3}$ and $y = \frac{3}{2}$
4. Perimeter of triangle: $a + b + c$ when $a = 11.5$, $b = 7.2$, and $c = 9.9$
5. Area of a rectangle: lw when $l = 2\sqrt{6}$ and $w = 3\sqrt{3}$
6. Perimeter of isosceles trapezoid: $2r + s + t$ when $r = \frac{4}{7}$, $s = 1$, and $t = \frac{13}{7}$

7. πr^2 when $r = 30$ (Use 3.14 for π.)
8. lwh when $l = 8$, $w = 6\frac{1}{4}$, and $h = 3\frac{1}{2}$

9. $2(lw + wh + lh)$ when $l = 4.5$, $w = 3$, and $h = 1$
10. $\dfrac{x - 3}{y + 2}$ when $x = 3$ and $y = -4$

11. $\dfrac{x + 5}{y - 2}$ when $x = -2$ and $y = -4$
12. $mx + b$ when $x = -6$, $m = \frac{5}{2}$, and $b = -2$

13. $6t^2$ when $t = 3$
14. $(6t)^2$ when $t = 3$
15. $\frac{1}{2}h(a + b)$ when $h = 3$, $a = 3\sqrt{2}$, and $b = 7\sqrt{2}$
16. $\sqrt{(x - 5)^2 + (y - 3)^2}$ when $x = 1$ and $y = 0$
17. $\frac{1}{3}x^2h$ when $x = 4\sqrt{3}$ and $h = 6$
18. $2s^2 + 4sh$ when $s = \sqrt{6}$ and $h = \frac{5}{2}\sqrt{6}$

Use the given information to rewrite each expression.

Example Bh when $B = \frac{1}{2}rs$ **Solution** $Bh = (\frac{1}{2}rs)h = \frac{1}{2}rsh$

19. $c(x + y)$ when $x + y = d$
20. $\frac{1}{3}Bh$ when $B = \pi r^2$
21. $\frac{1}{2}pl$ when $p = 2\pi r$
22. $2(l + w)$ when $l = s$ and $w = s$
23. $4\pi r^2$ when $r = \frac{1}{2}d$
24. $n(\frac{1}{2}sa)$ when $ns = p$

Solve each formula for the variable shown in color.

Example $y = mx + b$ **Solution** $y - b = mx$;
$x = \dfrac{y - b}{m}$, $m \neq 0$

25. $ax + by = c$
26. $C = \pi d$
27. $S = (n - 2)180$
28. $x^2 + y^2 = r^2$
29. $\dfrac{x}{h} = \dfrac{h}{y}$
30. $a^2 + b^2 = (a\sqrt{2})^2$
31. $A = \frac{1}{2}bh$
32. $m = \dfrac{y + 4}{x - 2}$