

3
Unit 4 Study Guide

Evaluate each expression if $x = 6$, $y = 2$ and $w = (-2)$.

1. $x - x^2 + w$ $6 - 6^2 + (-2) = 6 + 36 + -2 = -30 + 2 = -28$
2. $-w + 5y$ $-(-2) + 5(2) = 2 + 10 = 12$
3. $3(2x - 4w) + 8y$ $3(2 \cdot 6 - 4(-2)) + 8 \cdot 2 = 3(12 - (-8)) + 16 = 3(20) + 16 = 60 + 16 = 76$
4. The absolute value of $10xyw$ $|10(6)(2)(-2)| = |160(-4)| = |-640| = 640$
5. $4y/w$ $4(2)/(-2) = 8/-2 = -4$

Translate each phrase into an algebraic expression.

6. 7 less than twice a number x $2x - 7$
7. The quantity of x divided by 5 plus k $(x \div 5) + k$ $x \div 5 + k$ $(\frac{x}{5}) + k$
8. 8 times the sum of a and b $8(a + b)$
9. It costs \$15 to get in the county fair. Each ride ticket is \$0.50. Write an expression for the total amount spent using "t" number of tickets. $15 + 0.50t$

Translate each algebraic expression into words.

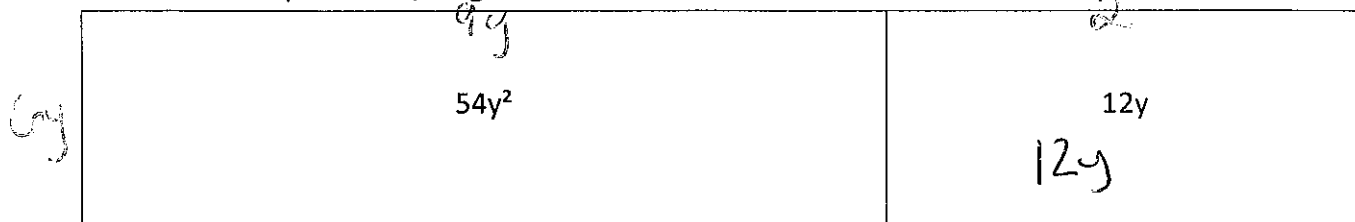
10. $5g + 6c$ 5 times g added to 6 times c
11. $4y(12)$ the product of 4 times y, and 12.
12. $8(h \div 9)$ 8 times the quantity of h divided by 9
13. $7 - 5r$ the product of 5 and r less than 7

Identify each property.

14. $5(6 - d) = 30 - 5d$ distributive
15. $a + bc = bc + a$ commutative
16. $3(4 + 0) = 3(4)$ identity $4 + 0 = 4$
17. $0(7) = 0$ zero property
18. $7 \times (4 \times g) = (7 \times 4) \times g$ associative
19. $xy = yx$ commutative
20. $-9 + 9 = 0$ inverse of 9
21. $1(h) = h$ identity of x
22. $6 + (g + 8) = (6 + g) + 8$ associative
23. $1/y \cdot y = 1$ inverse of x

$$\frac{1}{y} \cdot y = 1 \quad \frac{1}{6} \cdot 6 = 1$$

24. Identify the area, length and width of the area model.



Area = $\frac{(9y)(9y+2)}{54y^2+12y}$ length = $9y+2$ width = $6y$

Simplify each expression by combining like terms.

25. $6w^3 + w + 5 + 7w^3 = (6w^3 + 7w^3) + w + 5 = 13w^3 + w + 5$

26. $-237g + 300g = 63g$

27. $(h+3h+12) + (h^2+12) = (-2h+1)^2$

28. $4(5x+3w) + x+w + 6x(7+3) = (20x+12w) + (x+w) + (42x+18w) = 43x + 13w$

29. $6x + 5x(x+7) = 6x + 5x^2 + 35x = 5x^2 + 41x$

30. $8d(2d+8) + d^2 = 16d^2 + 64d + d^2 = 17d^2 + 64d$

31. $10 + 0.75y$

32. $5g$

$3x(y+9)$
 $3xy + 27x$
~~XXXXXXXXXX~~