

Name: Key
 Teacher: _____

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 Date: _____

Review of Operations, Expressions and Solving Equations

Order of Operations

1. $8 \times 3 \div 6 \times 2 - 7$

$$\begin{array}{r} 24 \div 6 \times 2 - 7 \\ 4 \times 2 - 7 \\ 8 - 7 = \boxed{1} \end{array}$$

2. $18 + 11 - 8 \times 9 \div 4$

$$\begin{array}{r} 18 + 11 - 72 \div 4 \\ 18 + 11 - 18 \\ 29 - 18 = \boxed{11} \end{array}$$

3. $4 \times (15 - (28 \div 7)) - 9$

$$\begin{array}{r} 4 \times (15 - (4)) - 9 \\ 4 \times 11 - 9 \\ 44 - 9 = \boxed{35} \end{array}$$

4. $((2 \times 7) - (54 \div 9)) \times 6$

$$\begin{array}{r} (14 - 6) \times 6 \\ 8 \times 6 = \boxed{48} \end{array}$$

5. $((15 + 12) - (9 \times 3)) \times 5$

$$\begin{array}{r} -(27 - 27) \times 5 \\ = 0 \times 5 \\ = \boxed{0} \end{array}$$

6. $(6 \times 8) + ((108+36) \div 3)$

$$\begin{array}{r} 48 + (144 \div 3) \\ 48 + 48 \\ \hline 96 \end{array}$$

7. $3 \times (13 \times 5 + 7^2) - 16 \times 4$

$$\begin{array}{r} 3 \times (13 \times 5 + 49) - 16 \times 4 \\ 3 \times (65 + 49) - 16 \times 4 \\ 3 \times 114 - 16 \times 4 \\ 342 - 64 = \boxed{278} \end{array}$$

8. $(33-19) \times (60 \div 15) + 5^2$

$$\begin{array}{r} 14 \times 4 + 25 \\ 56 + 25 \\ \hline 81 \end{array}$$

9. $((5+1)^2 - (72 \div 3)) \times 17$

$$\begin{array}{r} (6^2 - 24) \times 17 \\ (36 - 24) \times 17 \\ 12 \times 17 = \boxed{204} \end{array}$$

10. $9 + (4 \times (17-6)^2) - 84$

$$\begin{array}{r} 9 + (4 \times (11)^2) - 84 \\ 9 + (4 \times 121) - 84 \\ 9 + 484 - 84 \\ \hline 409 \end{array}$$

Simplify and Evaluate Expressions

11. $-46 + \underline{82c} + 101 - \underline{37c}$

$$\begin{array}{r} 55 - 293c \\ \hline -293c + 55 \end{array}$$

12. $\underline{12x} - 40 - \underline{37x}$

$$\begin{array}{r} \hline -25x - 40 \end{array}$$

13. $99 - (52y - 8)$

$$\begin{array}{r} 99 - 52y + 8 \\ \hline 107 - 52y \end{array}$$

14. $6(13 - 9n) - 5(7n - 5)$

$$\begin{array}{r} 78 - 54n - 35n + 25 \\ \hline -89n + 103 \end{array}$$

15. $-3(8b + 12 - b) - 10(4 - 5b)$

$$\begin{array}{r} -24b - 36 + 3b - 40 + 50b \\ \hline 26b - 40 \end{array}$$

16. $w \div 3 + x \times 5y$ use $w = 33, y = 4, x = -2$

$$\begin{array}{r} 33 \div 3 + -2 \times 5(4) \\ \hline 11 + -2 \times 5(4) \\ 11 + -10 \times 4 \end{array} \rightarrow \begin{array}{r} 11 + -40 \\ \hline -29 \end{array}$$

17. $a - b^2$ use $a = 14, b = 7$

$$14 - 49 = \boxed{-35}$$

18. $c^3(d + m \div 2)$ use $c = 3, d = 18, m = 4$

$$\begin{array}{r} 3^3(18 + 4 \div 2) \rightarrow 27(20) \\ 27(18 + 2) \end{array} \rightarrow \boxed{540}$$

19. $pq^2 \div 3$ use $p = 2, q = 9$

$$2(9)^2 \div 3$$

$$2(81) \div 3 = \boxed{54}$$

20. $2d - f + ef \div 4$ use $d = 5, f = 3, e = 16$

$$\begin{array}{r} 2(5) - 3 + 16(3) \div 4 \\ 10 - 3 + 48 \div 4 \\ 10 - 3 + 12 = 7 + 12 = \boxed{19} \end{array}$$

21. $(h - k)^2 + (2h - 5)$ use $h = 13, k = 8$

$$\begin{array}{r} (13 - 8)^2 + (2 \cdot 13 - 5) \rightarrow 25 + 21 \\ 5^2 + (26 - 5) \end{array} \rightarrow \boxed{510}$$

22. $w(8v + 3y)$ use $v = -1, w = 6, y = 6$

$$\begin{array}{r} 6(8 \cdot -1 + 3(6)) \rightarrow 6(10) = \boxed{60} \\ 6(-8 + 18) \end{array}$$

23. $f(g^2 - 3f)$ use $f = 20, g = 19$

$$\begin{array}{r} 20(19^2 - 3(20)) \\ 20(361 - 60) = 20(301) = \boxed{6020} \end{array}$$

24. $5 + 2(7j - k) + m \div 2$ use $m = 6, k = 5, j = -1$

$$\begin{array}{r} 5 + 2(7(-1) - 5) + 6 \div 2 \\ 5 + 2(-12) + 6 \div 2 \\ 5 - 24 + 3 \end{array} \rightarrow \boxed{-16}$$

25. $(5a^2 + b) \div 2 - a + 4$ use $a = -4, b = 12$

$$(5(-4)^2 + 12) \div 2 - (-4) + 4$$

$$(5(16) + 12) \div 2 + 4 + 4$$

$$(80 + 12) \div 2 + 4 + 4$$

$$92 \div 2 + 4 + 4$$

$$46 + 4 + 4 = \boxed{54}$$

Solve Equations

$$26. z + 7 = 13$$

$$z = 6$$

$$27. 4 = 19 + a$$

$$a = -15$$

$$28. -71 + r = 36$$

$$r = 107$$

$$29. s - 52 = 25$$

$$s = 77$$

$$30. 11h = 143$$

$$h = 13$$

$$31. -6b = -54$$

$$b = 9$$

$$32. 210r = -8400$$

$$r = -40$$

$$33. c \div 7 = 3$$

$$c = 21$$

$$34. u \div (-9) = 40$$

$$\begin{aligned} u &\cancel{\div 9} \\ u &= -360 \\ u &= -360 \end{aligned}$$

$$35. -m \div 3 = -104$$

$$\begin{aligned} -\frac{m}{3} &= -104 \\ -m &= -312 \end{aligned}$$

$$m = 312$$

$$36. 5(m + 2n) - 3p = 4 \text{ use } m = 6, n = 4$$

$$\begin{aligned} 5(6 + 2(4)) - 3p &= 4 \rightarrow 70 - 3p = 4 \\ 5(14) - 3p &= 4 \quad \cancel{-3p} = \frac{-66}{-3} \\ p &= 22 \end{aligned}$$

$$37. (9r + u \div 2) - (2r - 7s) = 3r \text{ use } s = 8, u = 40$$

$$(9r + 40 \div 2) - 2r - 7(8) = 3r$$

$$9r + 20 - 2r - 56 = 3r$$

$$7r + 20 - 56 = 3r$$

$$\begin{array}{r} -7r - 3r \\ \hline -4r = -4r \end{array}$$

$$r = 9$$

$$33. c \div 7 = 3$$

$$c = 21$$

$$34. u \div (-9) = 40$$

$$\begin{aligned} u &\cancel{\div 9} \\ u &= -360 \\ u &= -360 \end{aligned}$$