SUMMER MATH PACKET FOR STUDENTS RISING TO ALGEBRA 2

Provided by COX MATH TUTORING

Directions: Complete the following problems without the use of a calculator, unless the problem

is accompanied by a calculator icon: ⌨ .

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1.   Evaluate each expression.

1.1. $\dfrac{1-4+-6+-1}{-5}$

1.2. $5 - (-5) + |-8 \times 9|$

1.3. $\dfrac{9 \times 2}{7 \times 2 - 5}$

1.4. $-2 - \dfrac{5 \times 2}{|10|}$

1.5. $\dfrac{1}{8} - \left(\dfrac{-12}{7}\right)$

1.6. $5 - \left(-\dfrac{3}{5}\right)$

1.7. $2 - \dfrac{1}{2}$

1.8. $-1\dfrac{1}{2} + \dfrac{3}{7}$

2.   Find each product.

2.1. $\left(-2\dfrac{3}{10}\right)\left(\dfrac{1}{2}\right)$

2.2. $\left(\dfrac{2}{3}\right)\left(\dfrac{-3}{2}\right)$

2.3. $\left(\dfrac{8}{7}\right)\left(\dfrac{-2}{5}\right)$

2.4. $\left(4\dfrac{2}{7}\right)\left(-\dfrac{14}{9}\right)$

3.   Find each quotient.

3.1. $\dfrac{\frac{-9}{5}}{\frac{7}{5}}$

3.2. $\dfrac{\frac{1}{5}}{4\frac{5}{7}}$

3.3. $\dfrac{1}{4} \div (-2)$

3.4. $-2\dfrac{1}{4} \div \dfrac{-3}{5}$

4. **Solve each equation.**

4.1. $61 = -9 - 5n$

4.2. $-4 = \frac{p-1}{4}$

4.3. $\frac{-481}{36} = \frac{1}{4} - \frac{7}{4}r$

4.4. $-2\left(x + \frac{5}{3}\right) = -\frac{49}{12}$

4.5. $-108 = -3(4v + 4)$

4.6. $-7(7x + 7) = -392$

4.7. $5x + 8 = -8 + x$

4.8. $b + 1 = 3 + 2b + 7 - 4b$

4.9. $36 + 7n = -2(7n - 1) + 4n$

4.10. $-(3x - 4) = -24 - 7x$

5. **Solve each inequality.**

5.1. $1 > 2 + \frac{m}{6}$

5.2. $\frac{b-2}{22} \leq 1$

6. **Find the slope of the line through each pair of points.**

6.1. $(3, -12), (18, -12)$

6.2. $(-14, 19), (-19, -18)$

7. **Write the slope-intercept form of the equation of the line through the given point with the given slope.**

7.1.   through $(-1, 2)$, slope $= -3$ 7.2.   through $(-1, -5)$, slope $= 8$

8. **Write the slope-intercept form of the equation of the line through the given points.**

8.1. $(-1, -5), (3, -1)$ 8.2. $(0, -5), (4, -1)$

9. **Write the slope-intercept form of the equation of the line described.**
9.1.   through $(-1, 4)$, parallel to $y = -7x - 3$

9.2.   through $(-1, 1)$, perpendicular to $y = x + 4$

10. **Sketch the graph of each line.**

10.1. $y = \frac{-3}{2}x + 1$ 10.2. $y = 4x - 3$

11. **Simplify. Your answer should contain only positive exponents.**

11.1. $4u^{-3}v^3 \cdot 3v^3$ 11.2. $4a^3b^3 \cdot a^{-4}$

11.3. $\left(m^4\right)^3 \cdot m^2 n^{-3}$

11.5. $\dfrac{3xy^4}{2x^0 y^1 \cdot 4yx^{-2}}$

11.4. $\left(2mn^3\right)^2 \cdot m^4 n^3$

12. **Simplify each expression.**

12.1. $(4n^3 - 4n^2 - 5n) + (6n^2 + 5n^3 - 7n)$

12.2. $(8x^2 - 8x^3 - 4x) - (5x + 8x^3 + 2x^2)$

13. **Find each product.**

13.1. $(-7a + 8)(-4a + 1)$

13.3. $(a + 7)(-3a - 5)$

13.2. $(4n - 6)(3n + 4)$

13.4. $(3v - 2)(3v + 2)$

14. **Factor the common factor out of each expression.**

14.1. $9x^2 + 10x^3 - 3x^4 - 9x^{11}$

14.2. $-24k^3 - 40k$

15. **Factor each completely.**

15.1. $6x^2 + 66x + 144$

15.3. $4y^2 + 10y + 4$

15.2. $x^2 - 4x - 21$

15.4. $2n^2 - 9n + 10$

15.5. $30r^3 + 36r^2 + 25r + 30$

15.6. $21x^3 - 49x^2 + 12x - 28$

16.   Simplify.

16.1. $7\sqrt{18}$

16.5. $\dfrac{-2}{5\sqrt{3}}$

16.2. $-7\sqrt{180}$

16.6. $\dfrac{\sqrt{16}}{\sqrt{20}}$

16.3. $4\sqrt{63x}$

16.4. $-2\sqrt{180x^2}$

17.   Find the distance between each pair of points.

17.1. $(3,\ -3),\ (-7,\ -3)$

17.2. $(-1, 6),\ (7,\ 1)$

18.   Find the midpoint of the line segment with the given endpoints.

18.1. $(6, -3),\ (10,\ -3)$

18.2. $(-5,\ 8),\ (-7,\ 9)$

19.   Solve each system by substitution.

19.1. $-3x + y = -7$
         $5x - y = 9$

19.2. $-8x + 4y = -16$
         $x + 3y = 9$

20. Solve each system by elimination.

    20.1. $9x - 3y = 21$
            $-9x + 4y = -28$

    20.2. $x + 8y = 23$
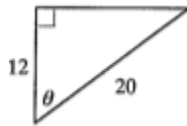 $x - 9y = -28$

21. Simplify each expression.
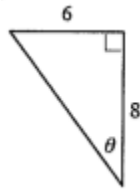
    21.1. $\dfrac{\frac{4}{x^2}}{\frac{1}{2}}$

    21.2. $\dfrac{\frac{3}{m}}{\frac{m-3}{m^2}}$

22. Find the value of the trig function indicated.
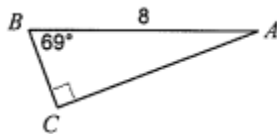
    22.1. $\cos\theta$

    22.2 $\sin\theta$

23. Solve each triangle. Round to the nearest tenth.

    23.1

    23.2