Honors
Geometry Summer Packet Name _____

SHOW WORK ON EACH PROBLEM!
EACH ANSWER SHOULD BE FULLY SIMPLIFIED

****All concepts on this worksheet are prerequisite knowledge from middle school math and Algebra. You are expected to know them without review the first day of class.**

****You should bring this completed worksheet with you the first day of class. If you should need another copy, you can find it on the Westlake High Website. There may be a quiz on this material the first week of classes.**

**** Show all work.**

I. Simplify each expression:

1) $5 + (16 + 2) \div 3$

Answer:

2) $-4 - (1 - 5) - (-4)^2$

Answer:

3) $(4 - 3)(1 - (3 + 5)) \times 5$

Answer:

4) $4a - 2(b + a) - (3b)^2$

Answer:

5) $2 - (3x + 5) - 4^2 + x$

Answer:

6) $[2 - 4(n^2 - n)] \div (2n + 1)$

Answer:

II. Simplify each radical expression.

1) $3\sqrt{6} - 4\sqrt{6}$

Answer:

2) $-2\sqrt{3} + 3\sqrt{27}$

Answer:

3) $3\sqrt{18} - 2\sqrt{2}$

Answer:

4) $\sqrt{24x^2y^5z^6}$

Answer:

5) $\sqrt{3}\,(\sqrt{15} + \sqrt{20})$

Answer:

6) $\sqrt{\frac{490}{10}}$

Answer:

III. Factor. If not factorable, write prime.

1) $2p^2 + 2p - 4$

Answer:

2) $n^2 - 11n + 10$

Answer:

3) $9k^2 + 66k + 21$

Answer:

4) $6x^2 - 4x - 8$ 5) $9r^2 - 48r + 64$ 6) $5m^2 - \frac{5}{4}$

Answer: Answer: Answer:

IV. Solve each equation.

1) $-20 = -4x - 6x$ 2) $8p - 5(p + 3) = (7p - 1)3$ 3) $p - 1 = 5p + 3p - 8$

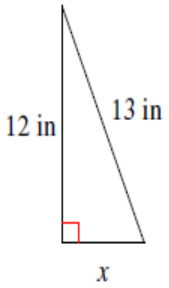
Answer: Answer: Answer:

4) $2x^2 + 5x + 3 = 0$ 5) $3x^2 + 2x = 5$ 6) $x^2 - 6x = 2$

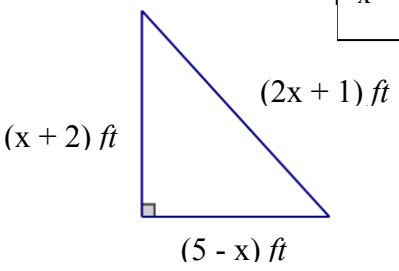
Answer: Answer: Answer:

V. Find the missing value. Leave in simplest radical form.

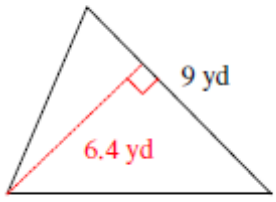
1) x =

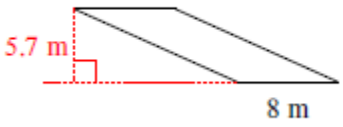


2) x =

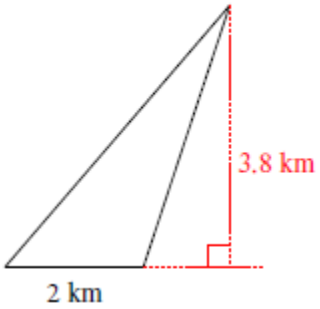


VI. Find the area of each polygon.

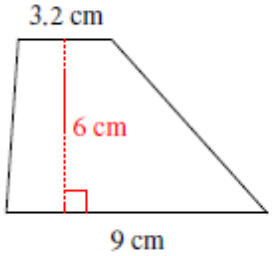




1) Area= 2) Area=



3) Area=



4) Area=

VII. For each problem
a) find the slope b) write the equation in slope intercept form [y = mx + b]
c) write the equation point-slope form [$y - y_1 = m\,(x - x_1)$]
d) write the equation in standard form. [ax + by = c]

1) (0.5, -0.7) and (0.4, 1.2) 2) (-3,2) and (-3, 7) 3) $(\frac{7}{2}, \frac{3}{4})$ and $(\frac{9}{2}, \frac{1}{8})$

Slope: Slope-int form: Point-slope form: Std form:	Slope: Slope-int form: Point-slope form: Std form:	Slope: Slope-int form: Point-slope form: Std form:

VIII. Find the midpoint. $midpoint = \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

1) (-3,2) and (-3, 7) 2) (0.5, -0.7) and (0.4, 1.2) 3) $(\frac{7}{2}, \frac{3}{4})$ and $(\frac{9}{2}, \frac{1}{8})$

Midpoint:	Midpoint:	Midpoint:

IX. Find the distance between the points. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$. Leave in simplest radical form.

1) (5, -7) and (4, 12) 2) (-3,2) and (-3, 7) 3) $(\frac{1}{2}, \frac{1}{2})$ and $(\frac{7}{2}, \frac{9}{2})$

Distance:	Distance:	Distance:

X. Find the slope given the equation of the line.

1) $y = 3x + 2$ 2) $x + y = 2$ 3) $2x + 2y = 4$

Slope:	Slope:	Slope:

XI. Find the slope of the line parallel and perpendicular to the given line.

1) $y = \frac{2}{3}x + 3$ 2) $3x + 4y = 8$ 3) $7x + 3y = 14$

∥Slope: ⊥Slope:	∥Slope: ⊥Slope:	∥Slope: ⊥Slope:

XII. Solve the system to find the intersection of the two lines.

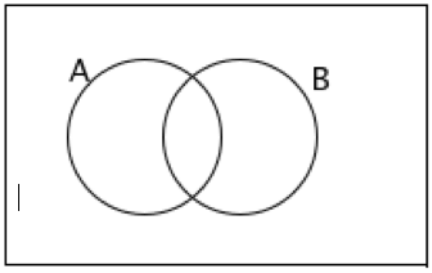
1) $\begin{cases} 4x - 2y = -14 \\ 3x - y = -8 \end{cases}$ 2) $\begin{cases} x - 3y = -4 \\ 2x + 6y = 5 \end{cases}$ 3) $\begin{cases} \frac{x}{3} - y = 3 \\ 2x + y = 25 \end{cases}$

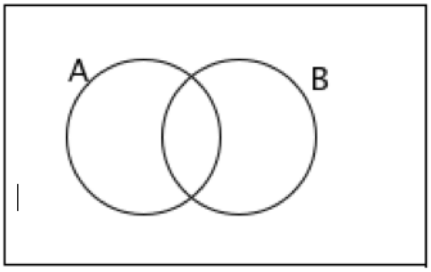
Solution:	Solution:	Solution:

XIII. Answer the following questions about Venn Diagrams.

1) Shade the region representing:

a) in A but not in B b) neither in A nor B.





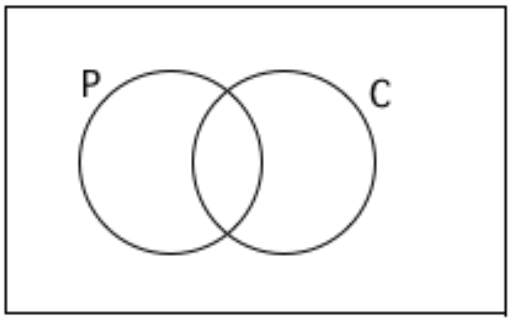
2) In a class of 30 students, 19 study Physics, 17 study Chemistry and 15 study both of these subjects. Display this information on a Venn diagram and determine the probability that a randomly selected class member studies:

a) both subjects

b) at least one of the subjects

c) Physics, but not Chemistry

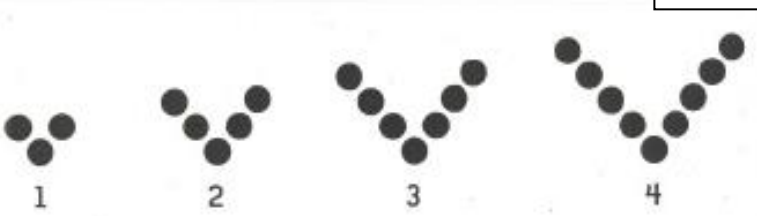
d) Exactly one of the subjects



e) Neither subject

XIV. Answer the following questions regarding patterns and sequences.

1) Analyze the pattern below. How would you know the total number dots in the 10th step?



Use the pattern below for questions 2 -4.

3, 8, 13, 18, 23…

2) What are the next two terms in the sequence?

3) Create a table to determine the algebraic expression for this sequence.

4) What would the 20th term be in this sequence?

5) The bells at Westlake High School ring at 7:55, 8:40, 9:25, 10:10. Explain how you can find when the next bell will ring.

XV. **Define a variable, write and solve an equation to find missing geometric dimensions.**

1) One of the angles of a triangle measures 35 degrees. Another angle measures 108 degrees. What is the measure of the third angle?

2) The perimeter of a rectangle is 24 inches. Find the dimensions if its length is 3 inches greater than its width.

3) The sides of a scalene triangle have measures that are consecutive even integers. If the perimeter of this triangle is 60 inches, what is the length of the longest side of the triangle?

4) Area of the trapezoid ABCD is 184 square units. One base of the trapezoid is 6 units more than the other base, and height of the trapezoid is 8 units. Find the measurement of the bases.

5) The height of a triangle is 8 meters less than its base. If the area of the triangle is 212.5 square meters, find the length of its base and height.

6) The height of a parallelogram is 5 feet more than its base. If the area of the parallelogram is 204 square feet, find its base and height.