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## Algebra 1 Summer Packet

Directions: Show all work (even on multiple choice, if possible). These topics are prerequisites to Algebra 1. They will be reviewed the first few days of school and later assessed.

1. Which of the following is an algebraic expression for the verbal expression "Seven less than three times a number"?
a. $7-3 x$
b. $3 x-7$
c. $7<3 x$
d. None of the above
2. Solve the proportion: $\frac{10}{n}=\frac{5}{3}$
3. Evaluate: $9-4-(-11)+3$
4. Evaluate: $(-2)(-3)(-4)$
5. Evaluate $\frac{3 x-4 y}{x^{2}-y^{3}}$ when $x=-2$ and $y=-4$.
a. $\frac{5}{34}$
b. $\frac{1}{6}$
c. $\frac{-11}{34}$
d. None of the above
6. Simplify: $9(x-1)-2(x-1)$
7. Which of the following is the graph of $x \leq 2$ ?


B.

D. $\begin{array}{lllll}+1 & & & & \\ -1 & 0 & 1 & 2 & 3\end{array}$
8. Simplify: $\left(6 x^{2}-8 x-7 x^{3}\right)-\left(6 x^{3}-x-6\right)$
9. Solve: $m+12=-4$
10. Solve: $-3 x=-21$
11. Solve: $6 x-7=-4$
12. Solve: $5(2 w+3)=6 w-2(w-6)$
13. Solve: $\frac{x+6}{3}=\frac{8}{5}$
14. Solve: $\frac{t}{-5}=8$
15. Solve: $-2 x<10$
16. Solve: $4 x+11 \geq 7 x-10$
17. Which ordered pair is a solution of the equation $y=2 x-5$ ?
a. $(3,-2)$
b. $(1,-3)$
c. $(-1,-6)$
d. $(-2,8)$
18. Simplify: $\sqrt{64}$
19. Between what two consecutive integers is $\sqrt{30}$ ?
20. Evaluate: $2^{3}+24 \div 6 \cdot 2-2$
21. Evaluate: $|-7|+|7|$
22. If $y \neq 0$, which of the following is equivalent to the expression $\frac{15 y^{9}}{5 y^{3}}$ ?
a. $10 y^{6}$
b. $3 y^{3}$
c. $3 y^{6}$
d. None of the above
23. Simplify: $\left(3 a^{4}+5 a-2 a^{2}\right)+\left(4 a^{4}+5 a+1\right)$
24. Simplify: $\frac{-2}{3}+\frac{3}{4}-\frac{1}{2}$
25. Simplify: $\frac{-3}{5} \div \frac{-9}{10}$
26. A health club offers memberships for various lengths of time. Some are shown in the table below.

HEALTH CLUB MEMBERSHIP

| Number of months | 3 | 6 | 9 |
| :---: | :---: | :---: | :---: |
| Cost | $\$ 95$ | $\$ 140$ | $\$ 185$ |

What might you expect to pay for a 12-month membership?
a. $\$ 195$
b. $\$ 205$
c. $\$ 230$
d. $\$ 250$
27. Four line segments are shown on the coordinate grid below.


Which of the line segments has a slope of 0 ?
a. $\overline{P Q}$
b. $\overline{Q R}$
c. $\overline{R S}$
d. $\overline{S T}$
28. Using the same graph in \#27, which of the line segments has a negative slope?
a. $\overline{P Q}$
b. $\overline{Q R}$
c. $\overline{R S}$
d. $\overline{S T}$
29. Find the slope of the line given the graph:
a. $\frac{3}{2}$
b. $-\frac{3}{2}$
c. $\frac{2}{3}$
d. $-\frac{2}{3}$

30. Find the slope of the line that passes through ( $8,-5$ ) and ( $-7,-4$ )
31. Find the slope of the line that passes through ( $2,-1$ ) and ( $2,-9$ )
32. Match the equation to the graph: $y=x-8$
A)

C)

B)

D)

33. Marisa drank one cup of milk and ate $x$ small vanilla cookies for a snack. The linear equation below represents $y$, the total number of calories in Marisa's snack:

$$
y=60 x+120
$$

a. What is the $y$-intercept of the line represented by this equation?
b. What is the slope of the line represented by this equation?
c. If Marisa eats 4 small vanilla cookies, what is the total number of calories in her snack? Show or explain how you got your answer.

