Name: $\qquad$

Multiple Choice - Place the best answer in the table.

1. In the equation $P=3 n-2$, what is the value of $P$ if $n=3$ ?
A) $\quad P=3=3(3)-2$
B) $\quad P=7=9-2$
C) $\quad P=9$
$: 7$
D) $\quad P=11$

| 1. | 6. |
| :--- | :--- |
| 2. | 7. |
| 3. | 8. |
| 4. | 9. |
| 5. | 10. |

2. Which equation relates the diagram number (d) to the number of squares (S)
A) $\quad S=2 d$
B) $\quad S=2 d-1$
C) $d=2 S$
D) $d=2 S-1$



$$
S=2 d-1
$$


3. The table shown represents a linear relation. What is the value of y if x is 8 ?

4. Which relation is non-linear?
A)
B)
C)
(D)



5. What is the equation of the graph shown?
A) $\quad x=-3$
B) $x=3$
C) $y=-3$
D) $y=3$

6. For the equation $5+2 x=9$, which statement is true?
A) horizontal line, $x=-2$
B) horizontal line, $x=2$
C) vertical line, $x=-2$
(D) vertical line, $x=2$
$5+2 x=9$
-5
$\frac{2 x}{2}=\frac{4}{2}$
$x=2$
7. Which equation represents an oblique line?
A) $x-3 y=5$
B) $x-5=7$
C) $y=4$
D) $7-4 y=-2$
8. In the equation $2 x+y=5$, what is the value of $y$ when $x=-2$ ?
A) $y=-4$
B) $y=1$
C) $y=7$
D) $y=9$

$$
\begin{gathered}
2(-2)+y=5 \\
-4+y=5 \\
+4=+4 \\
y=9
\end{gathered}
$$

9. Which equation matches the graph shown?

$3=2(0)-3$

$$
\begin{array}{lll}
3=0-3 \\
3 \neq-3 & \text { B } & y=-2 x+3 \\
3 & y=2 x-3 \\
3 & y=2 x+3
\end{array}
$$

$$
3=0+3
$$

$3=3$
Check $2^{\text {nd }}$ point $1=2(1)+3$ $1=2+3$

10. What is the value of $y$ if $x=10$ ?
A) $y=2.5$
B) $y=3$
C) $y=3.5$
D) $y=4$

11. The diagram below shows the first 3 diagrams in a pattern.

A) Create a table of values that compares the figure number, $F$, to the total number of hexagons (including the centre), $h$.

B) Write an equation that relates F to h .

$$
h=6 F+1
$$

C) Determine the number of hexagons in figure number 12.
$F^{\prime}=12 \rightarrow h=6(12)+1$

D) What figure number would have 55 hexagons?

$$
\begin{aligned}
55_{-1} & =6 f+1 \\
\frac{54}{6} & =\frac{6 f}{6} \\
f & =9
\end{aligned}
$$

12. An amusement park charges $\$ 6$ admission plus $\$ 3$ per ride.
A) Create a table of values comparing the total cost, $C$, to the number of rides, $n$.

| Rides | 0 | 1 | 2 | 3 | 4 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Cost | 6 | 9 | 12 | 15 | 18 |

$$
c=3 n+6
$$

B) Which is the dependent variable and which is the independent variable? [1]
$\qquad$ rides
c) Is this data continuous or discrete? [1] Discrete
D) Graph the data. Label the axes clearly. [3]

E) Is this relation linear or non-linear? [1] linear
F) How much would it cost for 12 rides? [1]

$$
\begin{aligned}
& c=3 n+6 \\
& c=3(12)+6 \\
& c=36+6 \\
& c=42
\end{aligned}
$$

$$
n=12
$$

G) How many rides could you go on for \$69? [1]

$$
\begin{aligned}
& C=3 n+6 \\
& 69=3 n+6 \quad c=669 \\
& -6 \\
& \frac{63}{3}=\frac{3 n}{3} \rightarrow n=21 \quad \text { you couldgo on } \\
& \text { al rides. }
\end{aligned}
$$

13. Graph $2 y-2=4$ [2]

$$
\begin{aligned}
& \left.\begin{array}{l}
4=4 \\
+2 \\
2
\end{array}+2\right] \\
& \frac{2 y}{}=\frac{6}{2} \\
& \frac{2}{2} \\
& y=3
\end{aligned}
$$


14. A) For the equation $2 x+y=-2$ fill in the table of values for $x=-2,0$, and 2. [3]
B) Graph the equation. [2]

$$
\begin{aligned}
\frac{x=-2}{2 x+y} & =-2 \\
2(-2)+y & =-2 \\
-4+y & =-2 \\
+4 & +4 \\
y & =2
\end{aligned}
$$

| x | y |
| ---: | ---: |
| -2 | 2 |
| 0 | -2 |
| 2 | -6 |

$$
x=0
$$

$$
\begin{aligned}
2 x+y & =-2 \\
2(0)+y & =-2 \\
0+y & =-2 \\
y & =-2
\end{aligned}
$$



$$
\begin{aligned}
& x=2 \\
& 2 x+y=2 \\
& 2(2)+y=-2 \\
& 4+y=-2 x=-6 \\
& -4
\end{aligned}
$$

15. Match each line on the graph with one of the equations. Show all workings. [4]

