Name: $\qquad$ Date: $\qquad$

1. Look at this equation:

$$
\frac{A+B}{2}=C
$$

Find three different numbers that you could substitute for the letters, given these restrictions: $A \neq 0, B>3$ and $C$ is even.
2. Which problem matches this equation?

$$
180 \div 6=x
$$

A. Mary has 3 hours to write 6 newspaper articles for her school paper. About how many minutes can she spend writing each article?
B. Six toddlers weigh a total of 180 pounds. How much does the heaviest child weigh?
C. 180 seventh graders received their class schedules today. Six schedules contained errors. How many schedules were correct?
D. 180 crackers are in 6 packages. How many crackers are in 3 packages?
3. Choose the situation that is modeled by the equation.

$$
y=\frac{x}{3}
$$

A. What is the perimeter, $y$, of a circle with a radius of $x$ ?
B. What is the cost, $y$, of 3 items when sales tax is $3 \%$ ?
C. What is the height, $y$, of a rectangle with sides of $x$ and 3?
D. What is the length, $y$, of a $\operatorname{rod} x$ that is divided into thirds?
4. Choose the situation that is modeled by the equation.

$$
y=3 x
$$

A. What is the cost, $y$, of 3 items when sales tax is $3 \%$ ?
B. What is the height, $y$, of a rectangle with sides of $x$ and 3 ?
C. What is the amount of snowfall, $y$, in $x$ hours, when it snows 3 inches per hour?
D. What is the length, $y$, of a rod that is divided into thirds?
5. Look at the table.

| $f$ | $?$ |
| :---: | :---: |
| 6 | 24 |
| 7 | 28 |
| 3 | 12 |
| 2 | 8 |

Which expression should go at the top of the second column?
A. $(f+3) \times 2$
B. $f+6$
C. $(f+2) \times 3$
D. $f \times 4$
6. Look at the table.

| $z$ | $?$ |
| :---: | :---: |
| 3 | 18 |
| 4 | 24 |
| 0 | 0 |
| 9 | 54 |
| 8 | 48 |

Which expression should go at the top of the second column?
A. $(z+6) \times 2$
B. $(z+3) \times 3$
C. $z \times 6$
D. $z+15$
7. Which problem could best be solved using this equation: $x+17=60$ ?
A. Bob has 60 baseball cards. He buys 17 more. How many cards does he have now?
B. Latoya found 60 seashells at the beach, but broke 17 of them. How many shells does she have left?
C. Kalief won 17 tokens at a video arcade. He now has 60 tokens altogether. How many tokens did he originally have?
D. Gayle rode 60 miles in a crosscountry bike race. She rode 17 miles in the mountains. How many miles of the race were not in the mountains?
8. a) Randy created a pattern with tiles. Complete the pattern.


Step 1 Step 2
Step 3
Step 4 Step 5
Step 6
b) Record the pattern in the table below. Write each step number in the left column and the corresponding number of tiles in the right column. Be sure to label the columns.

|  |
| :--- |

c) Explain how you completed the pattern and state at least one rule for the information in the table.
9. Write an algebraic expression for each phrase.

- half the sum of $k$ and 3
- 8 more than the difference of $g$ and 5
- 4 less than the quotient of $p$ and 2
- 1 divided by the sum of 6 and $r$

10. Jessie went to a concert with some friends. They bought 3 posters for $\$ 5$ each and 4 shirts for $\$ 10$ each. Which number sentences can be used to find $C$, the total cost of the items bought by Jessie and her friends?
A. $C=3+5+4+10$
B. $C=(3 \times 5)+(4 \times 10)$
C. $\quad C=(3+4) \times(5+10)$
D. $C=(5 \times 4)+(3 \times 10)$
11. Serena is 4 years older than Phillip. In 2 years, Serena will be twice as old as Phillip. Which equation best expresses these facts? $P$ represents Phillip's current age.
A. $2(P+6)=P+2$
B. $P+4=2(P+2)$
C. $P+6=2(P+2)$
D. $P+2=2(P-2)$
12. Two sides of a rectangle are shown. What is the perimeter of the rectangle in terms of $a$ ?
A. $10 a+4$
B. $10 a-4$
C. $12 a-6$
D. $14 a$

13. The lengths of the sides of a pentagon are shown. Express the perimeter in terms of $x$.
A. $10 x+1$
B. $11 x+3$
C. $11 x+1$
D. $11 x-1$

14. Solve for $k$.
$k-23=69$
15. Solve for $n$.

$$
125=\frac{n}{22}
$$

16. If $\frac{t}{6}=7$, find $t$.
17. Solve: $3 z=18$
18. If $\frac{3}{5} x=32$, what is the value of $x$ ?
A. $13 \frac{1}{3}$
B. $22 \frac{1}{2}$
C. $40 \frac{1}{3}$
D. $53 \frac{1}{3}$
19. Solve: $\frac{1}{5} x=30$
A. 6
B. 35
C. 20
D. 150
20. Explain the difference between these two graphs:

21. At low tide, the depth of water in a lagoon is 12 feet. At high tide, the depth of the water is 15 feet. If $d$ represents the water depth in the lagoon, which sentence best expresses this condition?
A. $\quad 15 \leq d \leq 12$
B. $12 \geq d \geq 15$
C. $15 \geq d \geq 12$
D. $12-d \leq 15$
22. On an interstate highway, the maximum speed limit is 65 miles per hour, and the minimum speed is 40 miles per hour. If $x$ represents speed, which sentence best expresses this condition?
A. $65 \leq x \leq 40$
B. $40 \leq x \geq 65$
C. $65 \geq x \geq 40$
D. $40-x \leq 65$
23. An amusement park allows free entry to children younger than 4 years old, but all other ages must purchase a ticket. The park sells child, teen, adult, and senior tickets. To buy a child ticket you must be at least 4 years old $A N D$ no more than 12 years old.

Which number line best shows the child ticket ages?
A.

B.

C.

D.

24. Which graph represents all real numbers greater than or equal to -3 ?
A.

B.

C.

D.

25. Amanda traveled the 400 miles to her grandmother's house with her parents. The trip took 9 hours. They left at 10:00 am and arrived at 7:00 pm. They stopped for lunch and then later for ice cream. The graph shows how many miles they traveled over the 9-hour period.


How long did Amanda and her parents stop for lunch?
A. 20 min
B. 40 min
C. 60 min
D. 90 min
26. Bobby, Johnny, and Archibald ordered an extra-large pizza for dinner. Bobby ate the fewest pizza slices. Johnny ate 5 slices more than Bobby. Archibald ate as many slices as Bobby and Johnny combined.

Which of these tables could represent the number of pizza slices the boys ate?
A.

| Name | Slices <br> eaten |
| :---: | :---: |
| Bobby | 4 |
| Johnny | 6 |
| Archibald | 9 |

B.

| Name | Slices <br> eaten |
| :---: | :---: |
| Bobby | 3 |
| Johnny | 8 |
| Archibald | 11 |

C.

| Name | Slices <br> eaten |
| :---: | :---: |
| Bobby | 7 |
| Johnny | 12 |
| Archibald | 5 |

D.

| Name | Slices <br> eaten |
| :---: | :---: |
| Bobby | 15 |
| Johnny | 10 |
| Archibald | 5 |

27. Tiffany has $\$ 12$ to buy bananas for the ice cream social. Each pound of bananas costs $\$ 0.35$. Which table best describes the amount of money $m$ Tiffany has left after buying $b$ bananas?
A.

| $b$ | $m$ |
| :---: | :---: |
| 0 | $\$ 12.00$ |
| 1 | $\$ 11.65$ |
| 2 | $\$ 11.40$ |
| 4 | $\$ 10.70$ |

B.

| $b$ | $m$ |
| :---: | :---: |
| 1 | $\$ 11.65$ |
| 2 | $\$ 11.30$ |
| 4 | $\$ 10.95$ |
| 5 | $\$ 10.60$ |

C.

| $b$ | $m$ |
| :---: | :---: |
| 0 | $\$ 12.00$ |
| 2 | $\$ 11.30$ |
| 3 | $\$ 10.95$ |
| 5 | $\$ 10.25$ |

D.

| $b$ | $m$ |
| :---: | :---: |
| 1 | $\$ 12.00$ |
| 2 | $\$ 11.30$ |
| 3 | $\$ 10.95$ |
| 5 | $\$ 10.25$ |

28. Name the independent and dependent quantities respectively.

A. Year, Sales History
B. Number Sold, Year
C. Sales History, Year
D. Year, Number Sold
29. Name the independent and dependent quantities respectively.

A. Percent Unemployed, Year
B. Year, Percent Unemployed
C. Labor Source, Year
D. Year, Labor Source

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1.

Answer: [answers vary]
Objective: 6.EE. 5
2.

Answer: A
Objective: 6.EE. 5
3.

Answer: D
Objective: 6.EE. 5
4.

Answer: C
Objective: 6.EE. 5
5.

Answer: D
Objective: 6.EE. 5
6.

Answer: C
Objective: 6.EE. 5
7.

Answer: C
Objective: 6.EE. 5
8.

Answer:

Objective:
more squares to the pattern.
9.

Answer:

Objective:

| $\frac{1}{2}(k+3)$ |
| :--- |
| $(g-5)+8$ |
| $\left(\frac{p}{2}\right)-4$ |
| $\left(\frac{1}{(6+r)}\right)$ |

10. 

Answer: B
Objective: 6.EE. 6
11.

Answer: C
Objective: 6.EE. 6
12.

Answer: B
Objective: 6.EE. 6
13.

Answer: C
Objective: 6.EE. 6
14.

Answer: 92
Objective: 6.EE. 7
15.

Answer: $\quad n=2750$
Objective: 6.EE. 7
16.

Answer: $\quad t=42$
Objective: 6.EE. 7
17.

Answer: $\quad z=6$
Objective: 6.EE. 7
18.

Answer: D
Objective: 6.EE. 7
19.

Answer: D
Objective: 6.EE. 7
20.

Answer: [answers vary]
Objective: 6.EE. 8
21.

Answer: C
Objective: 6.EE. 8
22.

Answer: C
Objective: 6.EE. 8
23.

Answer: D
Objective: 6.EE. 8
24.

Answer: A
Objective: 6.EE. 8
25.

Answer: C
Objective: 6.EE. 9
26.

Answer: B
Objective: 6.EE. 9
27.

Answer: C
Objective: 6.EE. 9
28.

Answer: D
Objective: 6.EE. 9
29.

Answer: B
Objective: 6.EE. 9

