Lovett Middle School Math
Summer Work for Rising 7th Grade Advanced Pre-Algebra

Print out this packet and show your work to complete each problem.

Evaluate each expression for the given value of the variable:

1. $x + 4$ when $x = 3$
2. $y - 6$ when $y = 10$
3. $3x + 4$ when $x = 5$
4. $5y - 6$ when $y = 4$
5. $\frac{5y}{4}$ when $y = 8$
6. $\frac{4k}{3} + 5$ when $k = 6$

For #’s 7-22, solve each equation using balanced equations. Show each step.

7. $b + 7 = 12$
8. $h + 10 = 18$
9. $k - 9 = 7$
10. $p - 15 = 3$
11. \[ 7m = 49 \]
12. \[ 9w = 108 \]
13. \[ 6n = 48 \]
14. \[ 11e = 77 \]
15. \[ \frac{m}{9} = 3 \]
16. \[ \frac{h}{7} = 10 \]
17. \[ 5 = \frac{b}{8} \]
18. \[ 7 = \frac{x}{9} \]
19. \( 8 = \frac{b}{4} \)  
20. \( \frac{10}{11} = 5w \) 

21. \( \frac{x}{3} = \frac{6}{9} \)  
22. \( \frac{7}{10} = n - \frac{1}{10} \) 

23. \( 4a + 9 + a = 54 \)  
24. \( 3(h + 2) - 2(h - 2) = 15 \) 

25. \( 5x + 16 = 13x - 8 \)
Write an algebraic expression for each of the following:

1. The sum of 6 and $u$
   
   ________________

2. The difference “$w$ less than 9”
   
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3. Divide $z$ by 8
   
   ________________

4. The product of $s$ and 10
   
   ________________

Read through the following example, then complete numbers 5 and 6.

**Write a linear equation for each of the following. Then state the independent and dependent variables for each equation.**

**Example**

Rosie has $w$ books. Colin has 5 fewer books than Rosie.

```
  +--------+
  |        |
  |    w   |
  +--------+
  Rosie

  +--------+
  |        |
  |    7   |
  +--------+
  Colin
```

**a)** Write an expression for the number of books that Colin has in terms of $w$.

Colin’s has $(w - 5)$ books.

**b)** If Colin has $p$ books, express $p$ in terms of $w$.

$$ p = (w - 5) $$

**c)** State the independent and dependent variables.

Independent variable: $w$, Dependent variable: $p$

5.

A shirt costs $t$ dollars. A pair of jeans costs $35$ more than the shirt.

**a)** Write an expression for the cost of the pair of jeans in terms of $t$.

**b)** If the pair of jeans costs $u$ dollars, express $u$ in terms of $t$. 
Order of Operations

*Simplify, showing your work:*

1. \(6 + 12 ÷ 6 - 3\)

2. \(6[13 - 2(4 + 1)]\)

3. \(18 - 2 \cdot 3^2\)

4. \(\frac{3}{5} + \frac{2}{3}\)

5. \(\frac{(-3)^2 + 49}{2}\)

6. \(\frac{9}{10} ÷ \frac{2}{5}\)

7. \(5(n + 2) + 8n + 1\)

8. \(\left(\frac{2}{3}\right) \div \left(\frac{6}{7}\right)\)
9. \( \frac{3}{\frac{3}{5}} \) 

10. \( \frac{2}{3} \div \frac{10}{13} \)

11. \( \frac{3\frac{1}{2}}{2} \div 2\frac{1}{8} \)

12. \( 0.89 \times 1.2 \)

13. \( 0.041 \times 8 \)

14. \( 6 \div 0.15 \)

15. \( 0.64 \div 0.04 \)

16. Evaluate for \( n = 6 \): \( 3[n + 2(11-n)] \)
Percent
Show your work to answer the following questions.

1. A bouquet of 25 flowers has 12 roses. What percent of the flowers are roses?

2. Of the 400 students at a carnival, 28 sell ride coupons.
   a) What percent of the students at the carnival sell ride coupons?
   b) What percent of the students at the carnival do not sell ride coupons?

3. Of 1,800 flags, 36 are purple. What percent of the flags are not purple?

4. What is 12% of 550 kilograms?
5. At a movie theater, 15% of the people were children, and the rest were adults. There were 45 children. How many people were at the movie theater in all?

6. 40% of a number is 180. Find the number.

7. A box of cereal is sold at a 15% markup. The original cost of the box of cereal is $2.20. At what price will the cereal be sold?

8. The original price of a laptop computer was $1,980. During a fair, the price was reduced by 30%. Find the price of the computer during the fair.
**Word Problems**
Show your work to answer the following questions.

6 pizzas were shared equally among a group of children. Each child got $\frac{1}{9}$ of a pizza. How many children were in the group?

Maria buys $8 \frac{1}{3}$ pounds of beef to make tacos for a party. She uses $\frac{5}{9}$ pound of beef for each taco. How many tacos can Maria make?

The cost of carpeting a square yard is $8.60. How much does it cost to carpet 9.7 square yards?

A roll of cloth 12 meters long is cut into smaller pieces of the same size. Each piece is 0.75 meter long. How many small pieces of cloth can be cut from the 12-meter roll?
Geometry:

Find the area of the figures.

In the figure below, trapezoid MNRS is made up of trapezoid MNPT, triangle TPQ, and parallelogram TQRS. The area of triangle TPQ is 84 square feet. The lengths of NP, PQ, and QR are in the ratio 2 : 1.5 : 1.

Find the area of trapezoid MNRS.