



## LESSON 3.2

# MATERIAL COUNT

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**LEVEL 3: Magic Moves, Basic Checkmate,  
Opening Principles**

**Scholastic Curriculum**

Version 1 | August 2018

## LESSON 3.2

# Material Count

## Lesson Structure

### 1. Chess Goals and Classroom Expectations

Today's lesson is dedicated to understanding how to count material values, and developing an understanding of which player is leading based on the material count.

### 2. Chess Instruction

**A. Getting Started:** Explain to students that each piece has its own "value" relative to the other pieces and pawns.

a. pawn = 1

b. knight = 3

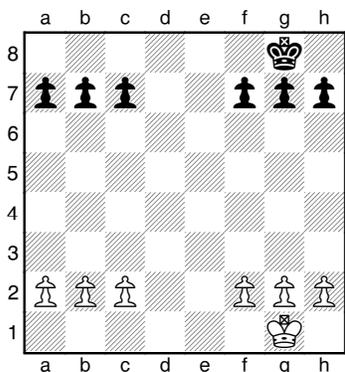
c. bishop = 3

d. rook = 5

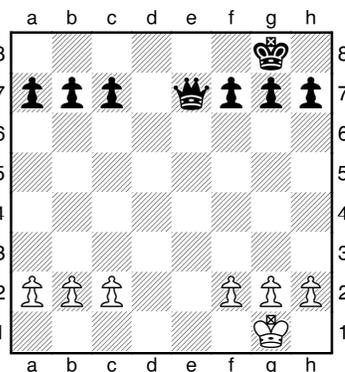
e. queen = 9

Generally, the king is not assigned a point value; we are unable to exchange the king because doing so would mean that we lose the game. The king is said to be invaluable.

**B.** For each of the following diagrams ask students to identify the value of Black's pieces, White's pieces, and which side is ahead in material. *Each diagram adds a new piece.*



Each side has six pawns.



White=6; Black=15

## STANDARDS

- » **3.2A** Assess who is winning based on material count.

## MATERIALS

- » Demo Board or Tablet & Projector
- » Chessboards & Pieces
- » Worksheets:
  - [3.2.1 Chess Piece Marketplace](#)
  - [3.2.2 A Knight at the Opera](#)
  - [3.2.3 Material Math](#)

## DIFFERENTIATION

### ADVANCED STUDENTS

- » [3.2.2 A Knight at the Opera](#)

### NOVICE STUDENTS

- » [3.2.3 Material Math](#)

## VOCABULARY

### » Material Advantage

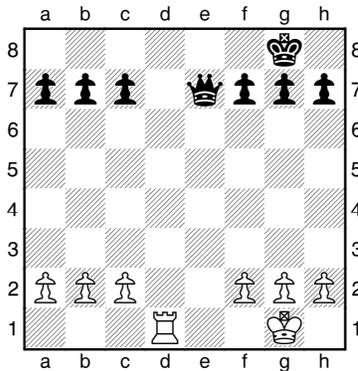
A numeric advantage in material for one side, normally expressed in the number of pawns.

### » Material Count

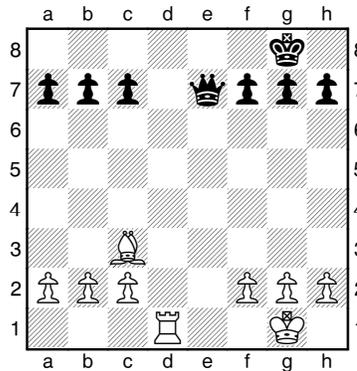
The comparison between the White and Black pieces to determine who stands better materially on the board.

## LESSON 3.2

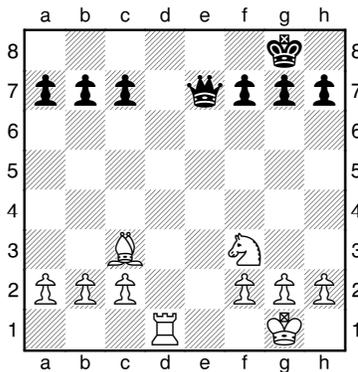
# Material Count



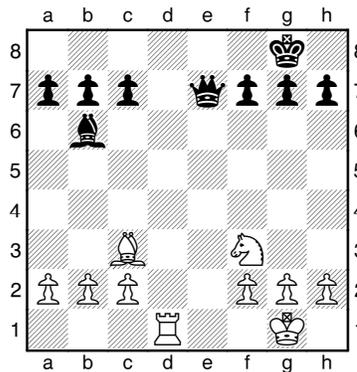
White=11; Black=15



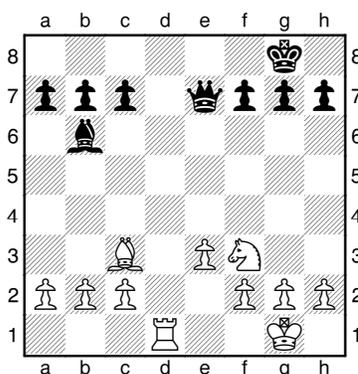
White=14; Black=15



White=17; Black=15



White=17; Black=18



White=18; Black=18

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A numeric advantage in material for one side, normally expressed in the number of pawns.

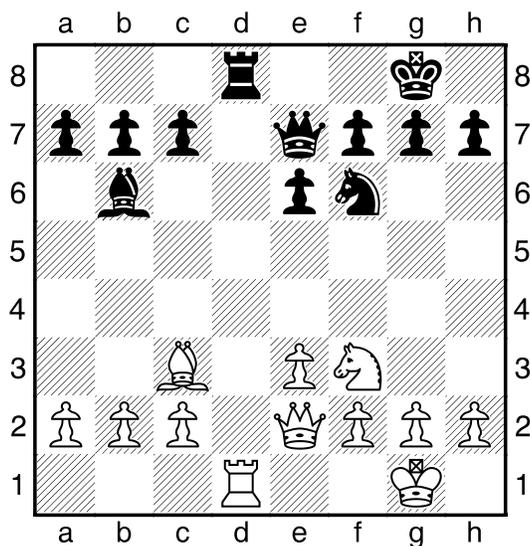
#### » Material Count

The comparison between the White and Black pieces to determine who stands better materially on the board.

## LESSON 3.2

# Material Count

- C. **Alternative Technique:** Students need not always add up each piece on each side. The compare and contrast method allows students to learn quickly which side has more material. Explain that a quick and efficient way to determine the material count on the board is to compare the White and Black pieces one by one: queen for a queen, rook for a rook, bishop for a bishop, and so on. This avoids the need to tally up the points in most situations.
- D. Practice using the diagram below. Ask students if one side has a material advantage using the compare and contrast method. Here each side has the same pieces. We know the material count is even without tallying the total points, because each side has six pawns, a queen, a rook, a knight, and a bishop.



- E. Material count is a simple tool to quickly analyze whether White or Black might be in a winning position. It is EXTREMELY important to note that an accurate analysis heavily depends on the game situation (e.g. where the pieces are positioned on the board, whose move it is, and so on).

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#### NOVICE STUDENTS

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### VOCABULARY

- » **Material Advantage**  
A numeric advantage in material for one side, normally expressed in the number of pawns.
- » **Material Count**  
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## LESSON 3.2

# Material Count

F. Use the following diagram to demonstrate this idea.

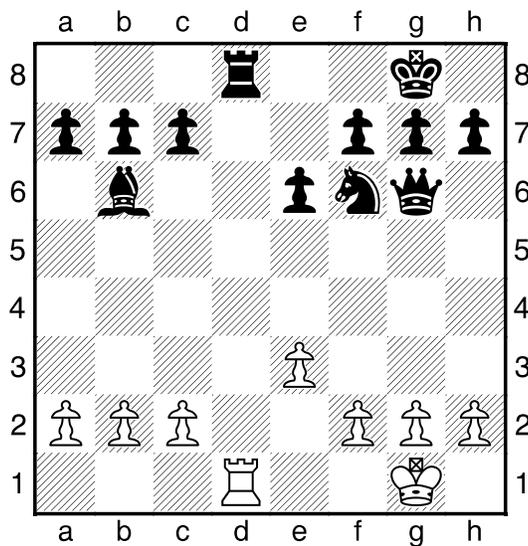
Ask students:

a. Who is ahead based on the material count?

*Answer: Black*

b. With White to move, who is winning?

*Answer: White can play 1.Rxd8+ and Black will be checkmated after the compulsory knight block.*



### 3. Exercise

Students should complete [3.2.1 Chess Piece Market Value](#).

### 4. Play Time

Once finished with the exercise instruct students to take out chessboards and play.

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## LESSON 3.2 Activities

### Activity 3.2.1

#### Her Majesty The Queen

*Materials: Chessboards & Pieces, Demo Board*

1. Pair up students at the chessboards.
2. Each player must choose 9 points of material to remove from their side of the board. For example, they can remove only the Q, a R+4P, or a N+B+3P, or any combination that equals 9 points.
3. Once material has been removed from each side of the board, students should play through a game.
4. Following the games, facilitate discussion about the combinations of pieces that students chose to remove from the board. Which removal strategy worked best? How did they adjust their play using an incomplete set of pieces?

### Activity 3.2.2

#### Buying up the Board

*Materials: Chessboards & Pieces*

1. Pair up students at chessboards. Each board should be set up with only kings and pawns.
2. Each player begins with 25 scholar dollars.
3. Students will use scholar dollars to purchase pieces to fill out their board.
4. The value of each piece equals the relative material value: Q=9, R=5, B/N=3, P=1. Students should notice that they cannot purchase a full set.
5. Once pieces are chosen for each side, students should place the purchased pieces in their starting locations and begin playing.
6. Ask students which combination of pieces they found to be the most useful.

# Worksheet 3.2.1

## Chess Piece Market Value



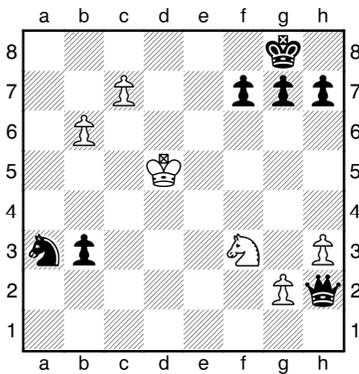
Name: \_\_\_\_\_

Date: \_\_\_\_\_

School: \_\_\_\_\_

Grade: \_\_\_\_\_

For each position below, write the material count for White and Black.  
Which player has the material advantage? Does that mean the same thing as a positional advantage? With a partner, pick a board and play from the given position.



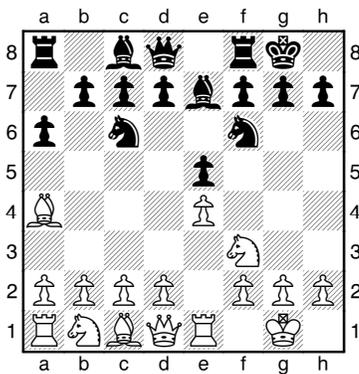
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



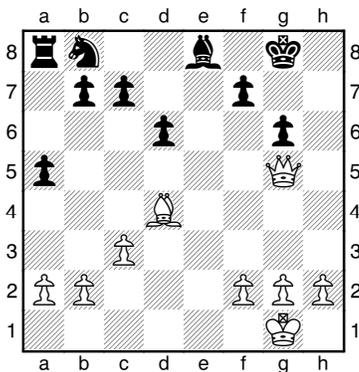
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

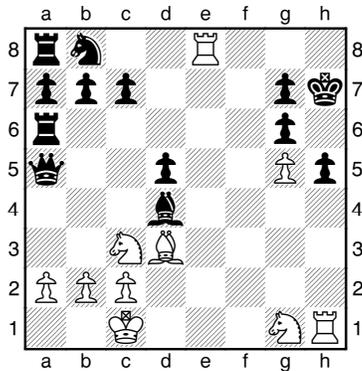
Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_

## Worksheet 3.2.1

# Chess Piece Market Value

(continued)



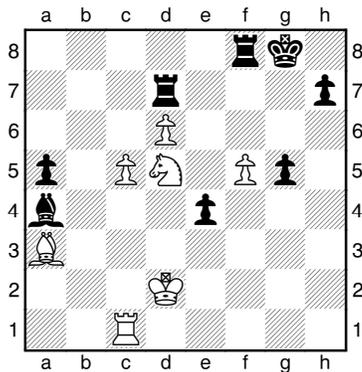
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



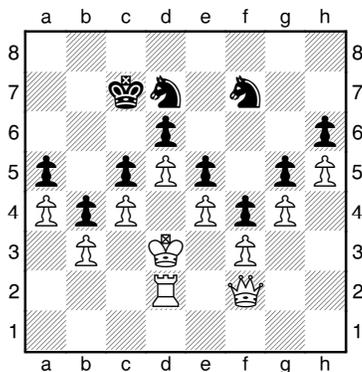
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

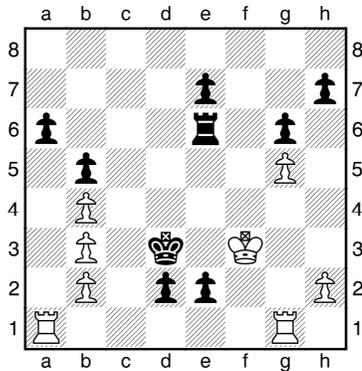
Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_

## Worksheet 3.2.1

# Chess Piece Market Value

(continued)



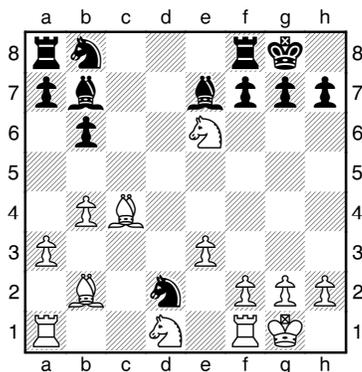
Black to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



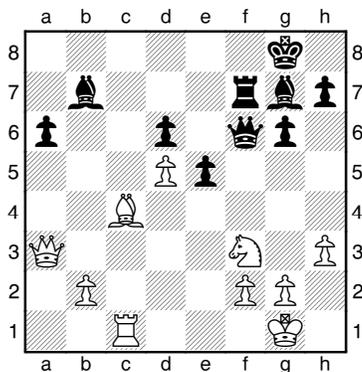
Black to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



Black to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

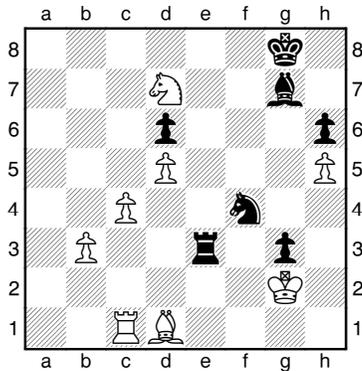
Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_

## Worksheet 3.2.1

# Chess Piece Market Value

(continued)



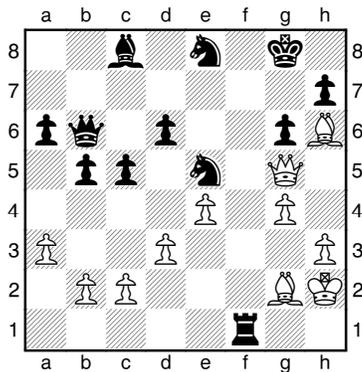
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



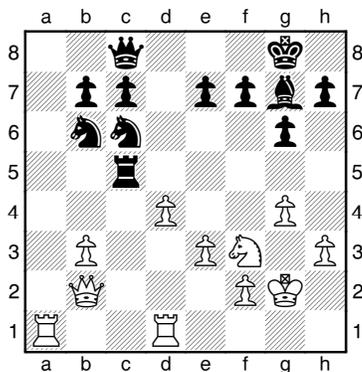
White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_



White to Move.

Black count: \_\_\_\_\_

White count: \_\_\_\_\_

Which side has the material advantage? \_\_\_\_\_

What is the next best move? \_\_\_\_\_

## Worksheet 3.2.2

# A Knight at the Opera

Monster Pieces vs. Material Count



Name: \_\_\_\_\_

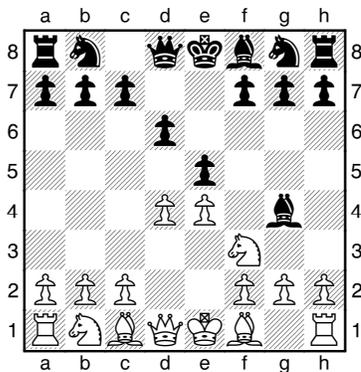
Date: \_\_\_\_\_

School: \_\_\_\_\_

Grade: \_\_\_\_\_

The following positions come from a game with Paul Morphy versus the Duke of Brunswick and Count Isouard. As the game moves on, keep a tally of the total material count for each side of the board. Discuss why certain moves are stronger than others with your teacher or a partner.

Do certain pieces increase or decrease in value as the game goes on?



1. e4 e5 2. Nf3 d6 3. d4 Bg4...

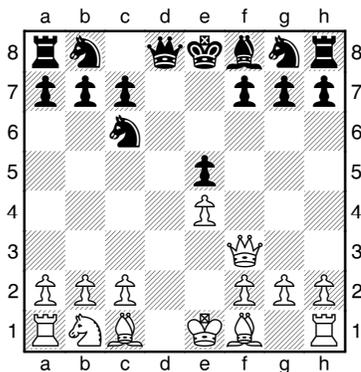
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

How should White capture the pawn on e5? Discuss.

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4. dxe5 Bxf3 5. Qxf3 dxe5

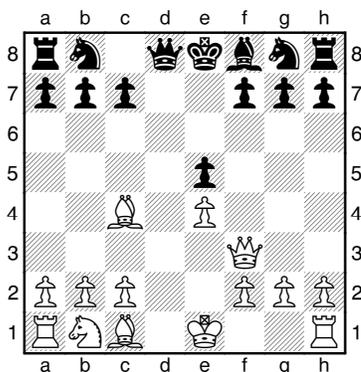
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

How can White create an attack? Discuss.

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6. Bc4 Nf6

Black count: \_\_\_\_\_ White count: \_\_\_\_\_

How can White keep pressure on Black? Discuss.

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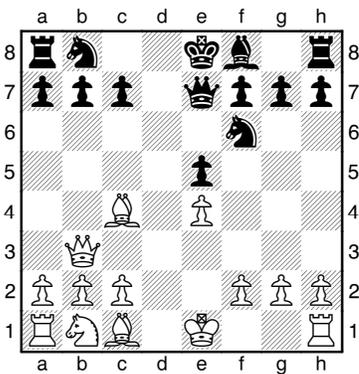
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## Worksheet 3.2.2

# A Knight at the Opera

Monster Pieces vs. Material Count

(Continued)



7. Qb3 Qe7 8. Qxb7 ???????

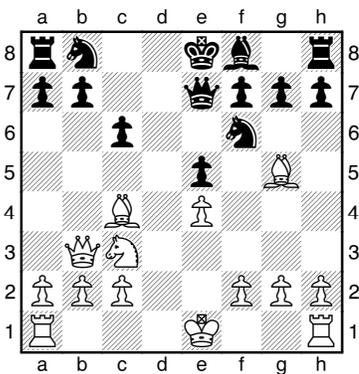
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

Should White take the pawn on b7? Discuss.

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8. Nc3 c6 9. Bg5.....

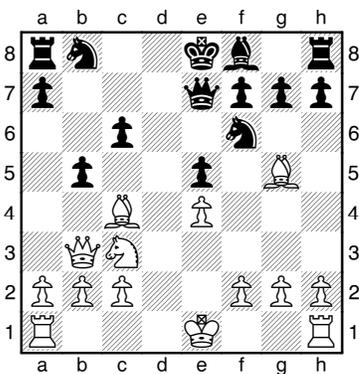
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

How does Black try to create an attack? Discuss.

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9. Bg5 b5 (attacking the bishop)

Black count: \_\_\_\_\_ White count: \_\_\_\_\_

What should White play in this position? Discuss.

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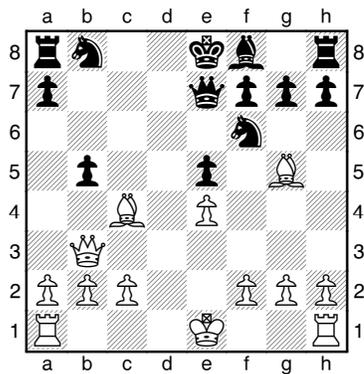
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## Worksheet 3.2.2

# A Knight at the Opera

Monster Pieces vs. Material Count

(Continued)



10. Nxb5! cxb5 11. Bxb5+

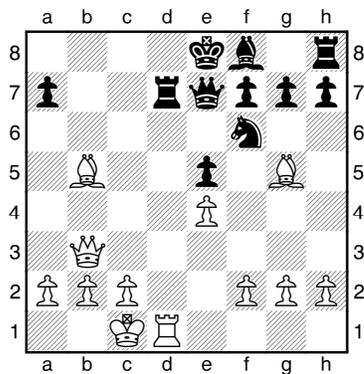
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

How should Black handle the check? Discuss.

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11. Bxb5+ Nd7 12. 0-0-0 Rd8

13. Rxd7 Rxd7 14. Rd1 Qe6

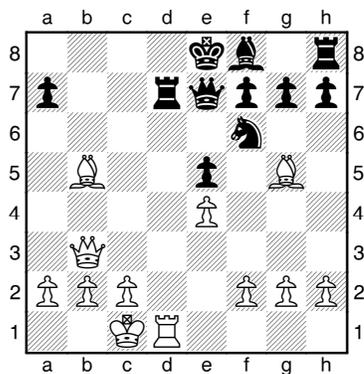
Black count: \_\_\_\_\_ White count: \_\_\_\_\_

Can you find White's winning combination? Discuss.

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15. Bxd7 Nxd7 16. Mate in 2

Black count: \_\_\_\_\_ White count: \_\_\_\_\_

Compare the beginning material count with the ending position. What can we learn from this game? Discuss.

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# Worksheet 3.2.3

## Material Math

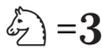
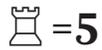
Name: \_\_\_\_\_

Date: \_\_\_\_\_

School: \_\_\_\_\_

Grade: \_\_\_\_\_

Solve the problems below using numbers or pieces.

 = 1     
  = 3     
  = 3     
  = 5     
  = 9

1.  +     = \_\_\_\_\_

7.  +  +  = \_\_\_\_\_

2.  +  =  + \_\_\_\_\_

8.     =  + \_\_\_\_\_

3.    = \_\_\_\_\_

9.    /  = \_\_\_\_\_

4.  /  = \_\_\_\_\_

10.  /  = \_\_\_\_\_

5.   +  = \_\_\_\_\_

11.  +  =  + \_\_\_\_\_

6.  +  -  = \_\_\_\_\_

12.  $8 \text{  } + 2 \text{  } + 2 \text{  } + \text{  }$   
 = \_\_\_\_\_