

## 7th Grade Big 25 Notes

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### **Question 1: Adding mixed numbers.**

To add mixed numbers:

1. Find the common denominator of the fractions.
2. Add fractions, then add whole numbers.
3. Be sure to reduce the fraction to lowest terms.

**Examples:**

### **Question 2: Subtracting mixed numbers.**

To subtract mixed numbers:

1. Find the common denominator of the fractions.
2. If you need to borrow, borrow 1 whole from the whole number
3. Change the 1 that was borrowed to a fraction with the same common denominator.
4. Add the borrowed fraction to the fraction in the top number.
5. Subtract the fractions.
6. Subtract the whole numbers.
7. Be sure to reduce the fraction to lowest terms.

**Examples:**

### **Question 3: Multiplying mixed numbers.**

To multiply mixed numbers:

1. Change the mixed number(s) to an improper fraction.
2. Cross-cancel if possible.
3. Multiply the numerators straight across.
4. Multiply the denominators straight across.
5. Be sure to reduce the fraction to lowest terms.

**Examples:**

### **Question 4: Dividing mixed numbers.**

To divide mixed numbers:

1. Change the mixed number(s) to an improper fraction.
2. **Keep** the first fraction.
3. **Change** the sign to “x” (multiply)
4. **Flip** (invert) the second fraction.
5. Cross-cancel if possible.
6. Multiply the numerators straight across.
7. Multiply the denominators straight across.
8. Be sure to reduce the fraction to lowest terms.

**Examples:**

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### **Question 5: Adding decimal numbers.**

To add decimal numbers, you line up the decimal points and add. If you have a whole number without a decimal, put the decimal at the **end** of the number so that you do not change the value of the number.

**Examples:**

### **Question 6: Subtracting decimal numbers.**

To subtract decimal numbers, you line up the decimal points and subtract. If you have a whole number without a decimal, put the decimal at the **end** of the number so that you do not change the value of a number.

**Examples:**

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### **Question 7: Multiplying decimal numbers.**

When multiplying decimal numbers you **DO NOT** line up the decimals. You multiply the numbers and count the total number of decimal places in the problem. You must have the same number of decimal places in your answer as you have total in the problem.

**Examples:**

### **Question 8: Dividing decimal numbers.**

To divide decimals you must move the decimal out of the number you are dividing by (number on the outside). The decimal for the number being divided (number on inside) must be moved **exactly** the same number of times. All decimals will move to the right. The divide and the decimal in the quotient should be in line with the decimal in the number that is divided (inside number).

**Examples:**

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### **Question 9: Adding Integers.**

To add integers with **like signs** (both positive or both negative) just add the numbers and keep the sign.

**Examples:**

If the signs are different (one positive and one negative) subtract the numbers and keep the sign of the largest number.

**Examples:**

### **Question 10: Subtracting Integers.**

#### **ADD THE OPPOSITE.**

1. Leave the first number alone.
2. Change the “-” sign to a “+” sign.
3. Change the second number to the opposite.
4. Complete the problem by using adding rules.

**Examples:**

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### **Question 11: Multiplying Integers.**

To multiply integers just multiply the numbers. To decide which sign to use in the answer:

1. If the signs are **alike** (both positive or both negative) the product will be **positive**.
2. If the signs are **different** (one positive and one negative) the product will be **negative**.

**Examples:**

### **Question 12: Dividing Integers.**

To divide integers just divide the numbers. To decide which sign to use in the answer:

1. If the signs are **alike** (both positive or both negative) the quotient will be **positive**.
2. If the signs are **different** (one positive and one negative) the quotient will be **negative**.

**Examples:**

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### **Question 13: Multiplying by 10, 100, 1000, etc.**

To multiply by 10, 100, 1000, etc. you move the decimal point to the right (to make the number bigger) the same number of places as you have zeros in the number.

**Examples:**

### **Question 14: Dividing by 10, 100, 1000, etc.**

To divide by 10, 100, 1000, etc. you move the decimal point to the left (to make the number smaller) the same number of places as you have zeros in the number.

**Examples:**

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### **Question 15: Finding the value of decimals with the exponent of 2.**

To find the value of a decimal with an exponent of 2 (squaring the number) multiply the number by itself. You must follow the rules for multiplying decimals. You multiply the numbers and count the total number of decimal places in the problem. You must have the same number of decimal places in your answer as you have total in the problem.

**Examples:**

### **Question 16: Finding the value of a fraction with an exponent of 2.**

To find the value of a fraction with an exponent of 2 (squaring a fraction) multiply the fraction by itself. You must follow the rules for multiplying fractions. When multiplying fractions you simply multiply the numerators and multiply the denominators. You must reduce the answer to lowest terms.

**Examples:**

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### **Question 17: Finding the square root of a number.**

To find the square root of a number, find the number that you can multiply by itself to get the number under the square root sign.

**Examples:**

### **Question 18: Finding the square root of a number between two consecutive whole numbers.**

To find the square root of a number between two consecutive whole numbers:

1. Find a number that you can multiply by itself to get as close to the number under the square root sign without going over.
2. The two consecutive whole numbers will be the square root just below the number and the next whole number (add 1 to the square root found).

**Examples:**

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### **Question 19: Rounding to the nearest decimal place.**

To round a number to the nearest decimal place:

1. Identify the digit in selected place value (this is the number that will stay the same or go up one).
2. Look at the digit to the right of the selected digit.
3. If the digit is 5 or more the selected digit goes up one (add 1 to the selected digit). Every digit to the right of the selected digit will become "0".
4. If the digit is less than 5 the selected digit is unchanged (stays the same). Every digit to the right of the selected digit will become a "0".

**Examples:**

### **Question 20: Rounding to the nearest whole number.**

To round a number to the nearest whole number:

1. Identify the whole number (this is the number that will stay the same or go up one).
2. Look at the fraction or decimal to the right of the whole number
3. If the fraction is larger than  $\frac{1}{2}$  or the decimal is larger than 5, the whole number goes up one (add 1 to the whole number).
4. If the fraction is less than  $\frac{1}{2}$  or the decimal is less than 5 the whole number is unchanged (stays the same).

**Examples:**

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### **Question 21: Changing a fraction to a decimal.**

To change a fraction to a decimal you divide the numerator by the denominator. You put a decimal at the end of the numerator and add zeros until you no longer have a remainder. If you continue to get the same remainder, you have a repeating decimal which takes a repetend sign over the number that repeats.

**Examples:**

### **Question 22: Changing a decimal to a fraction.**

To change a decimal to a fraction you use the decimal number (without the decimal) as the numerator and place the value of the decimal as the denominator. The fraction must be reduced to lowest terms.

**Examples:**

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### **Question 23: Change a fraction to a percent.**

To change a fraction to a percent

1. First change the fraction to a decimal by dividing the numerator by the denominator.
2. Then move the decimal two places to the right (multiply by 100).
3. Add a percent (%) sign.

**Examples:**

### **Question 24: Finding the percent (%) of a number.**

To find the percent of a number:

1. First change the percent to a decimal.
2. Then multiply.

**Examples:**

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**Question 25:** What percent of one number is of another number.

[What % of 40 is 8? / What % is 8 of 40? / 20% of what is 8? / 20% of 40 is what?]

Use the formula:  $\frac{\%}{100} = \frac{is}{of}$

**Examples:**