

7th Grade Assignment – Week #4

Individual Work:

- For this week, do your best to work through **Arithmetic – Sheet #3** in the workbook. If you need extra practice, and have the desire, then you can also work through Sheet #4. (This is the last assignment from this “Arithmetic” unit.)
- As a reminder, the Week #5 assignment will include an **Arithmetic Review Test**. This test will be based upon problems both from the *Arithmetic Review Sheets* (that you worked on in the first two weeks), and the *Arithmetic* unit found at the start of the 7th grade workbook.
- **Flashcards!!**
 - The document “7th Grade Flashcards” is found on the [assignment page](#).
 - I would like the students to learn the flashcards facts on the pages listed as:
 - Power flashcards
 - Fraction to Decimal Conversion Flashcards
 - 7th Grade Measurement Flashcards
 - The "Advanced" pages are optional - but recommended for the more advanced students.
 - The Percents flashcards should wait until later in the year.
 - These facts should be practiced for a few minutes daily for two weeks longer than would seem necessary. It will be very helpful to know these facts in high school!
 - Once you get into the routine, it only takes a couple of minutes each day.
 - It could save time by printing out these sheets, cutting it into small cards, and then writing the answers on the back lightly in pencil. Or you can just make your own flashcards.

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Group Assignment for either Tuesday or Thursday

- Note for parents/teachers: Be sure that the students do not look at the following question until their group meeting begins. I don't want anyone to arrive at the group meeting with a solution or ideas of how to solve it. I want the students to contemplate this together in their groups.

1. A Prime Factorization Puzzle

- a) What number has this prime factorization: $2^4 \times 3^2 \times 5$?
- b) What number has this prime factorization: $2^2 \times 3^3 \times 5^3 \times 17$?
- c) *Discovering a mathematical law regarding prime factorization!*

By looking at the prime factorization of any number, how can I quickly tell how many zeroes the number will end in?

Hint: Make up some of your own problems similar to the two above, and see if you can discover the law. Remember, of course, that when you make up a prime factorization, the base (which is under the exponent) must be a prime number.

I want you to spend as much time on this as needed. Once you have finished this, you can work on the below puzzles.

2. Age Puzzles

- a) The sum of Frank's and Tim's ages is 20. Frank is a year younger than twice Tim's age. How old are they?
- b) Mike is 4 years older than twice Jim's age, and four years younger than 3 times Jim's age. How old are they?

3. Coin Puzzles

- a) I have 10 coins (only dimes and quarters) worth a total of \$2.05. How many of each type of coin do I have?
- b) I have 21 coins (only nickels, dimes, and quarters) worth a total of \$1.95. How many of each type of coin do I have if there are twice as many nickels as dimes?
- c) I have 7 coins (any type of coin is permitted) worth a total of \$0.55. How many of each type of coin do I have? Find all possible solutions.
- d) I have 26 coins (any type of coin is permitted) worth \$3.90. How many of each type of coin do I have? Find all possible solutions.
- e) Make up your own coin puzzle, similar to the above puzzle, which also has multiple solutions.

Arithmetic – Sheet #3

Do it in your head

- 1) $0.043 \cdot 100$
- 2) $7649 \div 100$
- 3) $6400 \div 5$
- 4) 109^2
- 5) $5024 - 4986$
- 6) $6 \cdot 9999$
- 7) $15 \cdot 2$
- 8) $16 \cdot 4$
- 9) $15 \cdot 3$
- 10) $160 \cdot 300$
- 11) 18^2
- 12) 4^4
- 13) $0.03 \cdot 0.4$
- 14) 2^{10}
- 15) $120 \cdot 90$
- 16) $0.87 \cdot 11$
- 17) $25 \cdot 3$
- 18) $6.4 \div 4$
- 19) $220 \div 330$
- 20) 3^3
- 21) 4^5
- 22) $\sqrt{0.0049}$

Divisibility.

23) State whether each number is evenly divisible by anything from 2 to 12 (but not 7).

a) 156,750

b) 18,698,988

24) Give the prime factorization.

a) 888

b) 156,750

Division. Leave your answers as exact decimals (perhaps repeating).

25) $7.43 \div 6600$

26) $7 \div 0.303$

Powers & Roots

27) $\sqrt{250000}$

28) $\sqrt[3]{8}$

29) $\sqrt[4]{625}$

30) $\sqrt{64}$

31) $\sqrt[3]{64}$

32) $\sqrt[6]{64}$

33) $\sqrt[5]{32}$

34) $\sqrt[4]{16}$

35) $\sqrt[10]{1024}$

36) $\sqrt[4]{81}$

37) $\sqrt{810000}$

38) $\sqrt[4]{810000}$

39) $\sqrt{25600000000}$

40) $\sqrt[4]{25600000000}$

41) $(1.8)^2$

42) $(3\frac{1}{3})^3$

Fractions & Decimals

43) Convert to a fraction.

a) 0.0041

b) 0.8

c) 0.5

d) 0.175

44) Convert to a decimal.

a) $\frac{5}{8}$

b) $\frac{1}{6}$

c) $\frac{1}{30}$

d) $\frac{33}{40}$

45) Convert to both a mixed number and an exact decimal.

$$\frac{5303}{18}$$

46) $3.8 \cdot 0.0045$

47) $935.54 - 79.378$

48) $6\frac{2}{5} - 1\frac{3}{5}$

49) $6\frac{2}{5} \cdot 1\frac{3}{5}$

50) $6\frac{2}{5} \div 1\frac{3}{5}$

51) $12 \div 5\frac{1}{4}$

52) Quickly Estimate.

a) $5249 \cdot 48$

b) $78,804 - 67,914$

c) $4083 \div 68$

d) $315 \cdot 770$

Arithmetic – Sheet #4

Do it in your head

- 1) $6.39 \div 1000$
- 2) $7.307 \cdot 100$
- 3) 9000^2
- 4) $13 \cdot 4$
- 5) $25 \cdot 4$
- 6) $16 \cdot 3$
- 7) $15 \cdot 4$
- 8) 3^4
- 9) 2^6
- 10) 5^3
- 11) $18000 \div 2000$
- 12) $(10.3)^2$
- 13) $350 \div 560$
- 14) $235,000 \cdot 4$
- 15) $8043 - 2987$
- 16) $8 \cdot 99999$
- 17) $15 \cdot 999$
- 18) $6200 \cdot 5$
- 19) $740 \div 5$
- 20) $45 \div 54$
- 21) $21 - 3.1$
- 22) $0.03 \div 0.0006$

Divisibility.

23) State whether each number is evenly divisible by anything from 2 to 12 (but not 7).

a) 40,832

b) 1,062,882

24) Give the prime factorization.

a) 270,000

b) 1,062,882

Division. Leave your answers as mixed numbers. Use short division for single digit divisors.

25) $45277 \div 6$

26) $374000 \div 42$

27) $387031 \div 5823$

Powers & Roots

28) $\sqrt[3]{27}$

29) $\sqrt[5]{32}$

30) $\sqrt[3]{125}$

31) $\sqrt[5]{1024}$

32) $\sqrt[3]{1000000000}$

33) $\sqrt[3]{8000000}$

34) $\sqrt{64000000}$

35) $\sqrt[6]{64000000}$

36) $(400)^3$

37) $(100)^4$

38) $(2\frac{4}{5})^2$

39) $(\frac{1}{3})^4$

40) $(\frac{2}{5})^4$

41) $(0.05)^4$

42) $(3.8)^3$

Fractions & Decimals

43) Reduce each fraction.

a) $\frac{4800}{132000}$

b) $\frac{350}{800}$

44) Convert to a fraction.

a) 0.75

b) 0.075

c) 0.875

d) 0.0875

e) 0.52

45) Convert to a decimal.

a) $\frac{7}{20}$

b) $\frac{4}{11}$

c) $\frac{73}{99}$

d) $\frac{13}{250}$

e) $\frac{61}{80}$

46) $53\frac{2}{7} - 49\frac{3}{4}$

47) $6\frac{2}{3} \div 5$

48) $\frac{3\frac{1}{5} - 1\frac{1}{2}}{\frac{3}{\frac{3}{4}}}$