Week 1, Day 1 – Math Knowledge and Operations

10 flash multiplication and division questions	
14 X 5 = 70	9 X 6 = 54
6 X 7 = 42	12 X 7 = 84
11 X 12 = 132	169 / 13 = 13
8 X 6 = 48	72 / 9 = 8
144 / 12 = 12	64 / 8 = 8

Let's start out by going over some basic math terminology and concepts: Page 155 (Kaplan ASVAB Prep Plus)

What is an integer? (give examples)

What is a factor? (give examples)

What is an exponent? (give examples)

What is a square root? (give examples)

What is a reciprocal? (give examples)

What is a composite number? (give examples)

What is a prime number? (give examples)

What is a base number? (give examples)

What is a factorial? (give examples)

What is rounding? (give examples)

- Write out all perfect squares and perfect square roots
- Explain how to factor. Give examples
- Explain how to reduce / break apart a square root. Give examples
- Give examples of reciprocals

What is the order of operations? (PEMDAS)

Explain the concept of a fraction (numerator and denominator). Use the pizza example

Talk about the most commonly used fractions, percentages and decimals.

Explain how a decimal works and rounding. Explain 4 decimal places to the left and right

Point out the opposites, and write some examples

Fractions

Why are fractions important? – Page 144 (Kaplan ASVAB book)

Talk about how to add, subtract, multiply and divide fractions

Give at least 10 – 15 examples of each!

DEMO ONLY

Week 1, Day 2 – Math Knowledge and Operations

10 flash multiplication and division questions	
14 X 12 = 168	7 X 9 = 63
225 / 15 = 15	13 X 12 = 156
169 / 13 = 13	5 X 9 = 45
210 / 15 =14	182 / 13 = 14
15 X 11 = 165	9 X 7 = 63

Let's talk about multiplying two digit and three digit numbers…Row and column concepts

Give 4 examples of each –

24 X 45 = 49 X 57= 36 X 48= 15 X 91=

659 X 145= 123 X 456= 789 X 120 = 765 X 987=

Let's talk about long division and how it's useful. Talk about the divisor, dividend and remainder. Talk about how to:

- Translate a fraction into a division problem
- Translate a decimal into a fraction, and then divide
- Translate a percentage into a decimal / fraction

Give 10 examples –

10 / 15 5 / 400 5 / 40 2 / 3 .45

.50 .60 72.5 80% 50.25%

How to reduce fractions and cross cancel fractions. Give at least 10 examples

100 / 500 50 / 125 4 / 64 36 / 172 13 / 130

$\frac{7}{8} \times \frac{24}{14} \times \frac{3}{5} \times \frac{15}{36}$ $\frac{5}{15} \times \frac{4}{12} \times \frac{6}{1} \times \frac{36}{14}$

$\frac{27}{7} \times \frac{28}{9} \times \frac{3}{16} \times \frac{1}{8} \times 24$ $\frac{144}{8} \times \frac{24}{12} \times \frac{36}{9} \times \frac{5}{30}$

DEMO ONLY

How to convert a mixed number into improper fractions? How to convert an improper fraction into a mixed fraction?

Introduce multiplying decimals. Talk about first multiplying, then aligning the numbers, and then counting the number of decimal places

Examples:

9.70 X 87.5 1.004 X 2.001 78.95 X 84.1 101.9 X 93.3

.0024 X 24.01 .125 X 3.21

Let's talk about ratios – page 158 (ASVAB Kaplan book)

Ratios occur when you set two fractions next to each other with an unknown value. The goal is to figure out the relationship between the left numbers and the right numbers first. Then only, can you figure out the missing value.

Examples:

2X / 5 = 3 / 4 (solve for X) Video game example on page 159

Week 1, Day 3 – Math Knowledge and Operations

10 flash multiplication and division questions	
39 / 13 = 3	50 X .10
63 / 7 = 9	1 / 4 X 20
13 X 12 = 156	9 X 15 = 135
15 X 13 = 195	14 X 6 = 84
7 X 13 = 91	1 / 10 X 2 X 5

This whole day, we are going over PEMDAS and solving some examples. Before we do, let's go through a brief overview of each Order of Operation, and give two examples of each:

P – (67)(75), (3 – 5)(5 + 7)

STOP! Go over the rules of integers for adding, subtracting, multiplying and dividing. Give some examples of each one (page 136 – 138 – ASVAB Kaplan book)

E – 3^5, 5^{-2}

STOP! Go over the rules of exponents such as multiplying and dividing exponents, the rules of negative exponents and how they translate into fractions

M – - 12.5 X - 13, - .125 x 14 A – 145.76 + 250, - 350 + 330

DEMO ONLY

D – 5 /100, 150 / 10 S - 125 - - 30, 50 – 120

Explain order of operation opposites, including square roots

Now, give 10 examples -

$$\frac{\frac{1}{8}-\frac{1}{16}+\frac{1}{4}}{\frac{1}{2}\times\frac{1}{3}\times\frac{2}{3}}=$$

$$\frac{\left[8x-9/144\right]}{\frac{1}{\sqrt{100}}}=$$

$$\frac{\frac{1}{3}+\frac{1}{4}+\frac{1}{12}}{\frac{1}{4}-\frac{1}{3}+\frac{1}{12}}=$$

$$\frac{\sqrt{100}}{\sqrt{25}}\times .25\times -4= \quad 63-7+15\times -12+8/-2=$$

$$\frac{\sqrt{25}}{5}+17(55-14)= \quad \frac{15-16\left(\frac{1}{3}\times 21\right)}{5}=$$

$$\frac{\frac{3^5}{3^4}(75-3)}{4}= \quad \frac{\frac{1}{25}\left(5^2\times 5^{-2}\right)}{\frac{1}{100}}=$$

$$\sqrt{169}/13+\left(2^3-7\right)(-5\times 4)=$$