

MAT 050 – Prerequisite Material

Show all work for credit. Perform all these calculations without a calculator.

1. Divide. Give your answer in three forms:

- In remainder form.
- As a mixed number in reduced form.
- As a decimal, rounded to the nearest hundredth.

$$250 \div 14$$

2. Simplify: $2^3 \cdot 5^2$

3. Simplify: $45 - 4(5 - 2)^2 + 3 \cdot 2$

4. Find the least common multiple (LCM) of 12 and 40.

5. Find the greatest common factor (GCF) of 12 and 40.

6. Find the numerator to form an equivalent fraction with the given denominator: $\frac{3}{8} = \frac{?}{56}$

7. Find the sum and give your result as a reduced fraction: $\frac{5}{8} + \frac{7}{12} + \frac{1}{9}$

8. What is $\frac{9}{16}$ decreased by $\frac{5}{24}$?

9. Find the product of $\frac{12}{35}$ and $\frac{14}{9}$

10. What is $\frac{25}{24}$ divided by $\frac{35}{9}$?

11. Simplify: $\left(\frac{1}{2}\right)^2 \cdot \left(\frac{1}{3}\right)^3$

12. Simplify: $\frac{7}{5} - \frac{3}{2} \cdot \frac{4}{5} + \frac{4}{9}$

13. Find the total of 2.24, 6.5, 19.0005

14. Find the difference between 10 and 1.65

15. If you have a \$10 bill and buy a candy bar for \$1.65 (including tax), how much change will you receive?

16. Subtract: $15.2 - 8.75$

17. Multiply: 4.56×0.0003

18. Divide and give your result as a decimal rounded to the nearest tenth:
 $5.3 \div 0.007$

19. Convert $\frac{7}{9}$ to a decimal. Do not round. Use "bar" notation if needed.

20. Convert $\frac{4}{7}$ to a decimal rounded to the nearest tenth.

21. Convert 0.025 to a reduced fraction.

22. Place the correct symbol ($<$, $=$, or $>$) between the two numbers:

$$\frac{2}{3} \qquad 0.67$$

23. Perform the following calculations:

a. $-10 + 2$

b. $-7 - 5$

c. $3 - 9$

d. $-5 + (-3)$

e. $9 - (-4)$

f. $-3 - (-7)$

24. Perform the following calculation: $-125 - 7865$

25. Perform the following calculation: $-485 + 122$

26. Perform the following calculation: $(-252) \times 14$

27. Perform the following calculation: $(-500)(-0.08)$

28. Perform the following calculation: $36 \div (-4)$

29. Perform the following calculation: $\frac{-15}{-3}$

30. A car can be purchased for \$1800 down and 36 monthly payments of \$249.99. What is the total price of the car?

31. A landscaper earns \$150 for taking a job, plus \$75 per day that he works. What are his earnings if he works $7\frac{1}{2}$ days?

32. Sally is \$100 overdrawn on her checking account. She deposits \$250. What is her balance?

33. Joe is buying ice cream for the preschool class he runs. He plans to give servings of $\frac{3}{4}$ cup to each student. He buys a 12-cup container of ice cream.

a. How many $\frac{3}{4}$ cup servings will the 12-cup container provide?

b. If there are 20 students, did Joe buy enough ice cream?

Review Topics:

In general, the following link should provide access to a lot of great review videos (you may find everything you need for review in here!):

<http://www.khanacademy.org/math/arithmetic>

click on: Addition and subtraction

Multiplication and division

Factors and multiples

Negative numbers and absolute value

Decimals and percent

Fractions

For additional, or more specific, videos as well as sections in our text to review:

Translating from words to algebra:

- Section 7.1: Introduction to Algebra
- Words that indicate mathematical expressions

<http://www.youtube.com/watch?v=CfUvzKZgPJQ>

Rounding Whole Numbers:

- Section 1.3: Multiplication and Division; Rounding and Estimating
- Rounding whole numbers

<http://www.youtube.com/watch?v=1E4GUE1har0>

Long division:

- Section 1.3: Multiplication and Division; Rounding and Estimating
- $357 \div 4$, $47 \div 22$ and give the answer with a remainder, as a mixed number, and as a decimal

<http://www.youtube.com/watch?v=uQ8HQvk5jyE>

Exponential Notation:

- [illegible]

<http://www.khanacademy.org/math/arithmetic/exponents-radicals/world-of-exponents/v/understanding-exponents>

- Find the value of 5^3

<http://www.khanacademy.org/math/arithmetic/exponents-radicals/world-of-exponents/v/understanding-exponents-2>

Order of Operations:

- Section 1.6: Exponential Notation and Order of Operations
- PEMDAS: Evaluate: $15 \div 3 \times 2^2 - (3 + 4)$

<http://www.youtube.com/watch?v=3Mu3ciXkemg>

Finding Least Common Multiple (LCM) and Greatest Common Factor (GCF)

- Section 1.7: Factorizations
- Section 1.9: Least Common Multiples
- Factors and Multiples

<http://www.youtube.com/watch?v=UVRkhr0FiqA>

- Least Common Multiple

<http://www.youtube.com/watch?v=7qbS8ezQQG4>

- Greatest Common Factor

http://www.youtube.com/watch?v=UwYEz_mniJQ

Fractions:

Simplifying (Reducing)

- Section 2.1: Fraction Notation and Simplifying
- Reducing (basic)

<http://www.youtube.com/watch?v=1dezV0ruH0k>

- Reducing (slightly harder)

http://www.youtube.com/watch?annotation_id=annotation_837007&feature=iv&src_vid=1dezV0ruH0k&v=Lbu17iTPJOI

Multiplying

- Section 2.1: Fraction Notation and Simplifying
- Section 2.2: Multiplication and Division

- Multiplying (basic):
http://www.youtube.com/watch?v=B7MtFQW7i_I
- Multiplying (a little more complicated, involving a whole number)
<http://www.youtube.com/watch?v=RbAaKAR5ErM>
- Multiplying (with cancelling)
<http://www.youtube.com/watch?v=zQDNnDxsxi8>

Dividing

- Section 2.2: Multiplication and Division
- Dividing (basic)
http://www.youtube.com/watch?v=B7MtFQW7i_I
- Dividing (with music)
<http://www.youtube.com/watch?v=OGUaN-F80NA>
- Dividing (basic, “keep change flip”)
<http://www.youtube.com/watch?v=zED6DFflsAI>
- Dividing (“copy dot flip”, involving a whole number)
<http://www.youtube.com/watch?v=-XdzTKKFRqw>

Adding & Subtracting

- Section 2.3: Addition and Subtraction; Order
- With Like Denominators
<http://www.youtube.com/watch?v=EHeLrvO1t90>
- With Like Denominators
<http://www.mathtv.com/#>
Basic Mathematics, Fractions, Adding and Subtracting, Ex.2
- Equivalent Fractions
http://www.youtube.com/watch?v=Kfe_L4pkqe0
- Finding the Least Common Denominator (LCD)
<http://www.youtube.com/watch?v=8E5QDGxFhtM>
- Adding or Subtracting with Unlike Denominators (first example only)
<http://www.youtube.com/watch?v=KPFuOk-L1oE>
- Adding or Subtracting with Unlike Denominators
http://www.youtube.com/watch?v=_MokIPjLs6k

Ordering Fractions

- Section 2.3: Addition and Subtraction; Order
<http://www.youtube.com/watch?v=4CGEssgAllA>

Using Exponents and Order of Operations

- Section 2.6: Order of Operations; Estimation
- Raising fractions to exponents: Evaluate: $\left(\frac{3}{4}\right)^2$, $\left(\frac{2}{3}\right)^3$
<http://www.youtube.com/watch?v=O0z512OmSvU>
- Order of Operations, multiple examples
<http://www.youtube.com/watch?v=ro6yRADn3Mw>

Decimals:

Rounding

- Section 3.1: Decimal Notation, Order, and Rounding
- Rounding decimals
<http://www.youtube.com/watch?v=aebIRoQziMU>

Adding

- Section 3.2: Addition and Subtraction
- Adding
<http://www.youtube.com/watch?v=nmaUyeKpwSM>

Subtracting

- Section 3.2: Addition and Subtraction
- Adding and Subtracting (with music)
http://www.youtube.com/watch?v=V_pP919626E
- Subtracting from a Whole Number
<http://www.youtube.com/watch?v=dM4Fnv1oGXU>

Multiplying

- Section 3.3: Multiplication
- Multiplying
<http://www.youtube.com/watch?v=DxxM4e2X-3s>
- Multiplying
<http://www.youtube.com/watch?v=wwGUbdmFoBw>
- Multiplying

http://www.youtube.com/watch?annotation_id=annotation_487260&feature=iv&src_vid=DxxM4e2X-3s&v=iscAHyfe3Pg

Dividing

- Section 3.4: Division
- Dividing and Practice Moving the Decimal
<http://www.youtube.com/watch?v=X78xis8NbF8>
- Dividing and Rounding Quotients
http://www.youtube.com/watch?v=rL4_hTwumTg

Converting between decimals and fractions

- Section 3.5: Converting from Fraction Notation to Decimal Notation
- Decimals to Mixed Numbers (not reduced), Place Value
http://www.youtube.com/watch?v=Ogz3RQW_kOI
- Decimals to Reduced Fractions
<http://www.youtube.com/watch?v=QDsMNJpiaLg>
- Fractions to Terminating Decimals (basic)
<http://www.youtube.com/watch?v=jnWtoeDIQPg>
- Fractions to Repeating Decimals – “Bar” Notation
<http://www.youtube.com/watch?v=bi4gWtrockl>
- Fractions to Decimals (multiple examples, includes rounding & bar notation)
<http://www.youtube.com/watch?v=l7L-vNLki5w>

Ordering Decimals

- Section 3.1: Decimal Notation, Order, and Rounding
<http://www.youtube.com/watch?v=cw9RCCx9Rs8>

Ordering Fractions and Decimals

http://www.youtube.com/watch?v=CzxGypOZJ_Y

Signed Numbers

Opposites

- Section 7.2: The Real Numbers
<http://www.youtube.com/watch?v=8zD08KFmrGA>

Absolute Value

- Section 7.2: The Real Numbers
- Meaning and Notation (lots of basic examples!)
<http://www.youtube.com/watch?v=CuEY4wPfHmo>

Adding

- Section 7.3: Addition of Real Numbers
- Adding Integers Using a Money Analogy
<http://www.youtube.com/watch?v=-5VOCofsMVk>
- Adding Integers (using rules)
<http://www.youtube.com/watch?v=R3ugqwQugVo>

Subtracting

- Section 7.4: Subtraction of Real Numbers
- Remember the opposite of a negative is a positive!
<http://www.youtube.com/watch?v=kLGgm-gl7Tw>
- Positive minus negative $4 - (-8)$
<http://www.youtube.com/watch?v=YpC-KbEAE7I>
- Subtracting by turning into addition of the opposite
<http://www.youtube.com/watch?v=oegkrOTaBp8> (first 5 mins, 40 secs)

Multiplying and Dividing

- Section 7.5: Multiplication of Real Numbers
<http://www.youtube.com/watch?v=YR6BzEjLx6k>
- Section 7.6: Division of Real Numbers
<http://www.youtube.com/watch?v=2QJCOOnStpy0>
- Intuition (for negxpos or posxneg – multiplication is repeated addition) and examples
<http://www.youtube.com/watch?v=47wjld9k2Hs>
- Intuition (why is a negative times a negative a positive?)
<http://www.youtube.com/watch?v=czpxL6M7TkE> (number patterns)