Jakarta International School

7th Grade

Practice Test - Green

Operations with Fractions

Name: Master

Date: _____

Score: $\frac{}{35}$

Clearly show required work. Check Carefully!

1. The cafeteria at JIS buys hot dogs in packages of 36. The hot dogs buns come in packages of 20. What is the least number of packages of **each product** they can buy to have an equal number of hot dogs and buns? (2pts)

36, tree: 6 6 → 2 3 2 3

20, tree: 5 4 → 2 2

FIND LCM → $20 = 2^2 \cdot 5$
$36 = 2^2 \cdot 3^2$

LCM → $2^2 \cdot 3^2 \cdot 5$
$4 \cdot 9 \cdot 5$

$\boxed{LCM = 180}$

Hotdogs $180 \div 36 = 5$
Buns $180 \div 20 = 9$

Answer: 5 packages of hot dogs and 9 packages of buns.

2. Ji Soo budgets her $660 weekly salary as follows:
(2pts)
$\frac{2}{5}$ to her savings account, $\frac{3}{10}$ for her share of the rent, $\frac{1}{6}$ for the internet bill and $\frac{1}{10}$ for entertainment, and the rest for other expenses. How much money is left for other expenses?

$\frac{2}{5} + \frac{3}{10} + \frac{1}{6} + \frac{1}{10}$

$\boxed{LCD = 30}$

$\frac{12}{30} + \frac{9}{30} + \frac{5}{30} + \frac{3}{30} = \frac{29}{30}$

Therefore $\frac{1}{30}$ is left.

$\frac{1}{30}$ of 660

is $\frac{1}{30} \times 660^{22} = 22$

$\boxed{\$22 \text{ is left for other expenses}}$

3. Order the following fractions and decimals in order from least to greatest. (2pts)

$-\frac{3}{8}, -\frac{3}{4}, -0.38, -0.6$

$-\frac{3}{4}, \ -0.6, \ -0.38, \ -\frac{3}{8}$

4. Explain the following statement: When rewriting fractions with a common denominator, the common denominator can be any common multiple of the two original denominators, however, using the least common multiple is the most convenient choice. (2pt)

Any common multiple will work, however, the LCM is the smallest. This makes multiplication easier.

5. The R-Value of a building material measures how well the material keeps heat in or out. The greater the R-value, the better the insulating capability. Use the table below. List the **materials** in order from least to greatest R-Value. (2pts)

Material	R-Value
Plywood	$\frac{1}{2}$
Asphalt shingle	$\frac{5}{12}$
Brick	$\frac{2}{5}$
Stucco	$\frac{1}{6}$
Wood siding	$\frac{3}{4}$
Wood shingle	$\frac{11}{12}$

stucco, brick, asphalt shingle, plywood, wood siding, wood shingle

$\left(\frac{1}{6}, .1\overline{6}\right)$ $\left(\frac{2}{5}=0.4\right)$ $\left(\frac{5}{12} \cdot .41\overline{6}\right)$ $\left(\frac{1}{2}, 0.5\right)$ $\left(\frac{3}{4}; 0.75\right)$ $\frac{11}{12}$ (Close to

6. Compare. Use >,< or = to complete each statement. (2pts)

$\frac{5}{7}$ $<$ $\frac{-7}{-8}$

$\left(-7 \div -8 = +\right)$

$\frac{2}{10}$ $>$ $\frac{2}{100}$

7. Express each fraction as a decimal. Tell whether the decimal is terminating or repeating. (3pts)

a) $\frac{13}{20} = \frac{65}{100} = \boxed{0.65}$

Terminating

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

$$6\overline{)1.0}{}^{.166..}$$
$$\underline{-6}$$
$$40$$
$$\underline{-36}$$
$$40$$

$\boxed{0.1\overline{6}}$

Repeating

c) $3\frac{5}{8}$ $\boxed{3.625}$

Terminating

8. Write each as a fraction or mixed number in simplest form. (2pts)

a) 0.008 $\frac{8}{1000} = \boxed{\frac{1}{125}}$

b) $2.\overline{3} = \boxed{2\frac{1}{3}}$

$4\frac{2}{3} m$

9. Suppose you are building a tree house. You have a board that is 4 m long and you need a board that is $1\frac{3}{4}$ m long. How much should you cut off? (2pt)

$4\frac{2}{3} - 1\frac{3}{4}$

$4\frac{8}{12} - 1\frac{9}{12}$ $^{(3/12)}$

$3\frac{20}{12} - 1\frac{9}{12} = 2\frac{11}{12}$

You should cut $2\frac{11}{12}$ m off.

10. Rebecca spend three-eighths of the day away from home on school days. She leaves home at 7 o'clock in the morning. What time does she get home again? (2pts)

$\frac{3}{8}$ of 24 hours → $\frac{3}{8} \times \overset{3}{\cancel{24}} = 9$ hours

$7^{00} + 9^{hrs} = \overset{(16^{00}\ or)}{4^{00}}$ pm

She gets home at 4:00pm

11. Marie was baking a Vanilla Pound Cake using the recipe below. (3pts)

Vanilla Pound Cake

2 cups sugar

$\frac{3}{5}$ cup unsalted butter, melted

4 eggs

4 tsp vanilla

$3\frac{1}{2}$ cups all-purpose flour

2 tsp baking powder

1 cup milk

a) She has $1\frac{2}{3}$ cups of flour left from the last time she was baking. How much more flour will Marie need?

$3\frac{1}{2} - 1\frac{2}{3}$

$3\frac{3}{6} - 1\frac{4}{6}$

$2\frac{9}{6} - 1\frac{4}{6} = 1\frac{5}{6}$

> She needs $1\frac{5}{6}$ more cups of flour.

b) If she doubled the recipe, how much melted butter would she then need?

$\frac{3}{5} \times \frac{2}{1} = \frac{6}{5} = 1\frac{1}{5}$

> She would need $1\frac{1}{5}$ cups of butter.

c) If Marie only had a measuring spoon that measured $\frac{2}{3}$ tsp, how many times would she need to use this spoon in order to measure out all of the vanilla?

$4 \div \frac{2}{3} = \frac{\overset{2}{4}}{1} \times \frac{3}{\underset{1}{2}} = 6$

> She would need to use the spoon 6 times to measure the vanilla.

12. You are hiking along a trail that is $13\frac{1}{2}$ km long. You plan to rest every $2\frac{1}{4}$ km. How many rest stops will you make? (2pts)

$13\frac{1}{2} \div 2\frac{1}{4} = \frac{27}{2} \div \frac{9}{4} = \frac{\overset{3}{27}}{\underset{1}{2}} \times \frac{\overset{2}{4}}{\underset{1}{9}} = 6$
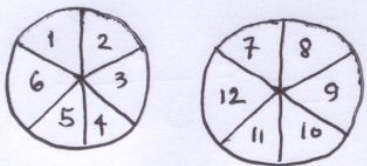
> You will make 6 rest stops.

13. During ESP Maddie caught a fish that was $3\frac{3}{4}$ kg. Today she caught one that had a mass of $2\frac{4}{5}$ kg. What was the total mass of the fish? (2pt)

$$3\frac{3}{4} + 2\frac{4}{5}$$

$$3\frac{15}{20} + 2\frac{16}{20} = 5\frac{31}{20}$$

$$6\frac{11}{20} \qquad \text{The total mass of the fish is } 6\frac{11}{20} \text{ kg.}$$

14. Draw a diagram that illustrates the solution to $2 \div \frac{1}{6}$. Evaluate the expression and be sure the answer is clear in your diagram. (2pts)

$$2 \div \frac{1}{6} = \frac{2}{1} \times \frac{6}{1} = 12$$

How many $\frac{1}{6}$'s are in 2?

Answer : 12

15. A rectangle is 22 cm long and 20 cm wide. Three quarters of its length and two-thirds of its width are cut off. (3pts)

$$\frac{3}{4}_2 \text{ of } \frac{22''}{1} = \frac{33}{2} = 16\frac{1}{2}$$

a) How long is the remaining rectangle?

$$22 - 16\frac{1}{2} = 21\frac{2}{2} - 16\frac{1}{2} = 5\frac{1}{2}$$

$$\frac{2}{3} \text{ of } \frac{20}{1} = \frac{40}{3} = 13\frac{1}{3}$$

The length is $5\frac{1}{2}$ cm

b) How wide is the remaining rectangle?

$$20 - 13\frac{1}{3}$$

$$19\frac{3}{3} - 13\frac{1}{3} = 6\frac{2}{3} \qquad \text{The width is } 6\frac{2}{3} \text{ cm.}$$

c) What is the area of the remaining rectangle?

$$A = l \times w$$
$$A = 5\frac{1}{2} \times 6\frac{2}{3}$$
$$A = \frac{11}{2}_1 \times \frac{20^{10}}{3} = \frac{110}{3} = \boxed{36\frac{2}{3} \text{ cm}^2}$$

The
Barbell in the Bag

Every once in a while, Emma and Will's problem solving becomes a family affair. Here's an example of a time when their mom got involved.

Will and Emma's mom likes to go to the gym to ride the stationary bicycle. She generally goes on Tuesdays and Fridays. While she rides, she reads. She catches up on the newspapers that come out on Mondays and Thursdays. Usually, she reads nearly as fast as she pedals. But on Tuesday, October 2, she felt a gentle tap on her shoulder. It was Jim, the gym's manager.

"Have you got a minute?" Jim asked. "I could use your kids' help. I've got a crime that needs solving."

Jim told Emma and Will's mom that three days ago, on September 29, a 150-pound barbell walked off. He explained that the weight would have been far too heavy for only one person to carry very far. He added that a patron of the gym claimed to have seen the two culprits lugging a heavy duffel bag. It seems that Mr. Uphill spotted them carrying the bag between them, Jack-and-Jill style.

"You mean a couple of dumbbells made off with a barbell?" Emma and Will's mom asked.

"That's exactly what I mean," Jim answered. "Would you ask Will and Emma to stop by here after school? I would be very grateful."

Jim was waiting for the two detectives when they strolled up to the gym's front desk.

"So, a couple of dumbbells made off with a barbell on Saturday?" Emma inquired. Their mother had filled them in at home.
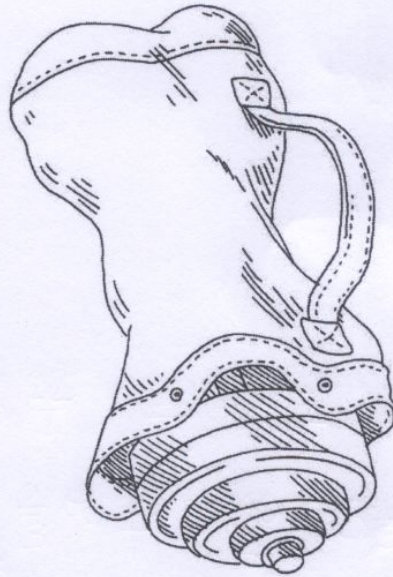
"Who did Mr. Uphill say he saw?" asked Will.

Jim leaned over the counter and whispered, "He says he saw Belinda R. and Carlos C. carrying the duffel bag together."

"Belinda R. and Carlos C. I know them," said Emma. "Are they regulars here?"

"As regular as Swiss clocks," Jim replied softly. "Belinda, Carlos, and their friend Aaron, too. The three of them joined the gym at the same time in early August. Aaron comes to the gym every other day. Carlos comes every fourth day. Belinda, I believe, works out here every third day. But let me check."

Will and Emma were impressed by how well Jim seemed to know the habits of his customers. Jim turned around the registration forms so that Will and Emma could read them, and pointed to the three names. "Yes, I was right. All three of them first came here together on Thursday, August 2."

Emma and Will looked at the signed forms, each carrying the date of August 2. Then Will reached into his pocket and pulled out his personal organizer. He and Emma looked at the calendar in the organizer. Next they looked at each other and then at Jim.

"The three of them were here together yesterday, weren't they?" Will asked.

Jim nodded slowly. He looked a little puzzled by the remark. "How'd you know?"

"We don't know yet which dumbbells walked off with your barbell, but we know that Carlos and Belinda didn't do it," Emma said with confidence.

> How did Emma know that Belinda and Carlos weren't the culprits?

Answer: Of the three friends, only Aaron was at the gym on September 29, the day of the theft. All three kids were there together only on every 12th day, beginning with August 2. They were at the gym on Aug. 14, 26 and Sept. 7, 19 and Oct 1.