Numerical Operations: Chapter Test 1

1. The solution to one of the following calculations is the integer, -15. Which one?

   a. $4^2-(5+-6)-13-7$

   b. $(4^2-5)+-6-13-7$

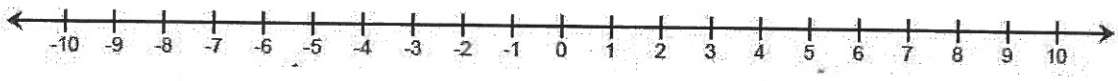
   c. $4^2-5+-6-(13-7)$

2. Calculate the following and indicate the placement of each integer obtained on the number line given below.

   a $\frac{15}{3}\div\frac{8}{3}-2\frac{7}{8}$

   b $\frac{20}{7}\div\frac{8}{3}\times5\frac{3}{5}\div\frac{-12}{4}$

   c $(10.3+6.5-17.3)\times-10$



3. Calculate the following. Give your answer as a decimal.

   a. $4\frac{1}{5}+2$

   b. $10\frac{2}{5}\div\frac{1}{4}\times2$

   c. $\frac{1}{5}\times2^3-4\frac{1}{3}$

4. Solve for "x" for each of the following equations. Give your answer as a decimal rounded to the nearest hundredth.

   a. $5x=21.576-7.25$

   b. $\frac{x}{1.6}=\frac{1.2}{0.5}$

   c. $-2x=\frac{3}{11}$

5. If you start with the integer 2, what is the final integer obtained if you do the following in the order given:

i. Multiply by -4

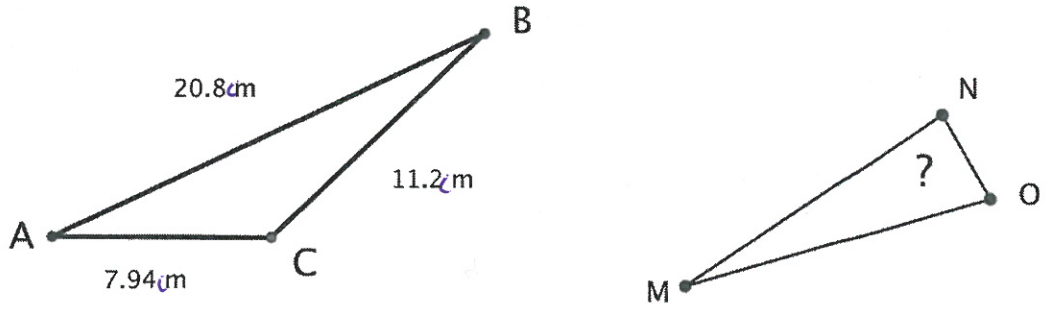
ii. Add 5

iii. Subtract 9

iv. Divide by 3

v. Multiply by 10.

6. A triangle is drawn such that its sides measure, 20.8 cm, 11.2 cm and 7.94 cm as shown in the diagram below. You wish to find the measurements of a second triangle such that side MN is 2 times smaller than AB, side NO is 5.6 cm less than BC and side OM is 3.5 cm more than side CA. What is the perimeter of triangle MNO?



7. In a group of 4000, $\frac{1}{5}$ are men. It is approximated that $\frac{1}{10}$ of these men are colorblind. How many colorblind men would be expected in this group of people?

8. The student council raised $1000 and wishes to distribute the money to two non-profit organizations. They give 20% to the SPCA and $\frac{3}{7}$ to the Mira Foundation. They will keep the remainder in the budget for next year. How much will be in their budget next year?

9. Four siblings are given $45 to spend at the movies. The tickets for the movie are $6.25 each. They all also get a snack of popcorn and soda, which costs them each $3.25. They will split the money that is left after these purchases. How much money will each sibling get?

10. You get together with friends to buy a frozen ice-cream cake. The cake costs $12 before taxes. Once you add the tax of 13.5 % and a tip of 10%, how much will you be paying for the cake?

Numerical Operations: Chapter Test 2

1. In order to claim a prize you need to solve the following skill testing question. What is the answer to this skill-testing question?

   $3(-2)-8+2\times(3^2-1)-(5\times4\div10)$

2. Calculate each of the following and place the integers obtained in ascending order for your final answer.

   a. $2\frac{1}{5}+2\frac{1}{2}-\frac{17}{10}$

   b. $2.5\times-4+5.25+3.75$

   c. $14\div7+3-(10-7)--2$

3. Calculate the following. Give your answer as an irreducible fraction.

   a. 1.5×0.32

   b. $10.65\div1.5$

   c. $-5.3+3^2--0.8$

4. Solve for "x" for each of the following equations. Give your answer as a decimal rounded to the nearest tenth.

   a. $\frac{x}{4}=\frac{10}{7}$

   b. $\frac{20}{x}=100$

   c. $x-10=\frac{5}{4}$

5. There are 20 people on a bus. At the first stop 2 people get off and 5 get on. At the second stop 5 people get off and 1 gets on. At the third stop 10 people get off and 2 get on. How many people are on the bus when it arrives at the fourth stop?

6. An area is cleared for a new community garden. It will cost $10 for every 8 square feet of land. If the community garden has an area of 720 square feet, how much would it cost to prepare the grounds for this garden?

7. A recipe for brownies shows that $\frac{1}{2}$ cup of oil is required. To make this recipe healthier, applesauce is used to replace some of the oil. Only $\frac{1}{3}$ of the oil is now actually used. How many cups of oil were used?

8. For almost 4000 years, the Great Pyramid of Giza was the tallest freestanding structure in the Middle East. Now this title is given to the Dubai Towers, which has a height of 829.8 m. If the pyramid's height is 17% of the height of the Dubai towers, what is the difference in height between the two structures? Round your answer to the nearest meter.

9. You have decided to try a new pizza recipe and must purchase some ingredients at the grocery store. The chart below shows the price of each ingredient and the quantity needed. How much will this cost if you only buy the amount needed for the recipe and there is no tax?

Ingredient	Cost	Quantity Needed
Pepperoni	\$5.50 for 1 kg	$\frac{1}{5}$kg
Pizza Sauce	\$1.29 for each can	2 cans
Red Peppers	\$6.00 for 4	1

10. You want to buy a new pair of skates and decide to visit two different sports stores. The first has a pair for \$120 with an 8% discount. Taxes were charged at a rate of 13%. The second store had the same pair of skates for \$130 but they charged no taxes. Which pair of skates would cost you less and by how much?

Extension

11. A car salesman's salary can be based on a number of different considerations such as base salary, number of cars sold, and other bonuses. Some of these are outlined below:

- Base Salary: $15.00 every hour
- Bonus based on profits: $\frac{1}{5}$ of the profits from selling cars
- Bonus based on cars sold:

Number of cars	Bonus for month
Sell between 10 and 13 cars	$300
Sell 15 cars	$600
Sell 18 cars	$900

- Bonus for a car sold on a holiday: $200

In the month of January, he sold 11 cars, one of which he sold on New Years (January 1st). The company made a profit of $1300 on the cars that he sold. This month, the salesperson made $1960.00. How many hours did he need to work each week in this month to make this amount?

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(1) (b.)

(2) a. $\frac{15}{3} \div \frac{8}{3} - 2\frac{7}{8}$

$5 \times \frac{3}{8} - 2\frac{7}{8} \rightarrow$ $\frac{8 \times 2}{8 \times 1} + \frac{7}{8}$

$\frac{15}{8} - \frac{23}{8}$

$\boxed{-\frac{8}{8} = -1}$

b. $\frac{20}{7} \div \frac{8}{3} \times 5\frac{3}{5} \div \frac{-12}{4}$

c. $\boxed{5}$

$\frac{20}{7} \times \frac{3}{8} \times \frac{28}{5} \div \frac{-12}{4}$

$\frac{60}{56} \times \frac{28}{5} \div \frac{-12}{4}$

$\frac{1680}{280} \div \frac{-12}{4}$

$6 \div \frac{-12}{4}$

$6 \times \frac{-4}{12}$

$\boxed{-\frac{24}{12} = -2}$

(4) a. $\frac{5x}{5} = \frac{14.326}{5}$

$x = 2.87$

b. $\frac{x}{1.6} = \frac{1.2}{0.5}$

$0.5x = (1.2)(1.6)$

$0.5x = 1.92$

$x = 3.84$

c. $\frac{-2x}{1} = \frac{3}{11}$

$(-2x)(11) = (3)(1)$

$\frac{-22x}{-22} = \frac{3}{-22}$

$x = -0.136$

or -0.14

(5) 20

(6) $MN = 20.8 \div 2 = 10.4\text{cm}$

$NO = 11.2 - 5.6 = 5.6\text{cm}$

$OM = 7.94 + 3.5 = 11.44\text{cm}$

$P. = 27.44\text{cm}$

(7) $4000 \times \frac{1}{5} = 800$ men.

$800 \times \frac{1}{10} = 80$ men. (colorblind.)

(8) $1000 \times 0.20 = \$200$ SPCA

$1000 \times \frac{3}{7} = \$428.57$ Mira.

1000
200
− 428.57
$371.43 remaining.

Num. Op. Ch. Test 2

(2) a. $2\frac{1}{5} + 2\frac{1}{2} - \frac{17}{10}$

$\frac{11 \times 2}{5 \times 2} + \frac{5 \times 5}{5 \times 2} - \frac{17}{10}$

$\frac{22}{10} + \frac{25}{10} - \frac{17}{10}$

$\frac{47}{10} - \frac{17}{10}$

$\frac{30}{10}$

$= 3$

b. $2.5x - 4 + 5.25 + 3.75$

-1

c. $14 \div 7 + \cancel{3} - \cancel{3} + 2$

$2 + 2$

4

final: $b = -1$

$a. = 3$

$c = 4$

(4) a. $\frac{x}{4} = \frac{10}{7}$

$4(10) = 7x$

$40 = 7x$

$x = 5.71$

$= 5.7$

b. $\frac{20}{x} = \frac{100}{1}$

$\frac{20}{100} = \frac{100x}{100}$

$x = 0.2$

c. $x - 10 = \frac{5}{4} + 10$

$+10 \quad +10$

$x = \frac{5}{4} + \frac{10 \times 4}{1 \times 4}$

$x = \frac{5 + 40}{4}$

$\frac{x}{1} = \frac{45}{4}$

$\frac{4x}{4} = \frac{45}{4}$

$x = 11.25$

$x = 11.3$

(6) $\frac{720 \text{ ft}^2}{8} = 90 \times \$10 = \$900$

(7) $\frac{1}{2} \times \frac{1}{3} = \boxed{\frac{1}{5} \text{ cups of oil.}}$

(8) $829.8 \times 0.17 = 140.93\text{m} = \text{Giza.}$

$$\begin{array}{r} 829.8 \\ -\ 140.93 \\ \hline 689\text{m} \end{array}$$

(9) pep. $\$5.50 \times \frac{1}{5} = \$1.10$

sauce: $\$1.29 \times 2 = \$2.58$

peppers: $\frac{\$6}{4} = \$1.50$ each. so $\$1.50$

$$\begin{array}{r} 1.10 \\ \rightarrow 2.58 \\ +\ 1.50 \\ \hline \boxed{\$5.18} \end{array}$$

(11) Bonus: 11 cars so $300

+ Jan 1st car so: $200

Based on profits of company: $1300 \times \frac{1}{5}$

$= \$260$

so: $1960.00

$- \ 760$

$1200

$300 + 200 + 260$

$=$

1200 ÷ $15/hr.

80 hours.