BRONX COMMUNITY COLLEGE
of the City University of New York
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE

NAME: Solutions Test 2 Sample 9/22/14
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Each questions is 5 points. SHOW ALL WORK to receive full credit. Simplify all answers: reduce all fractions and convert improper fractions to mixed numbers. Include any units.

The actual test will be on Wednesday 10/1/14

1. $\frac{3}{7}+\frac{5}{7}+\frac{6}{7}=$ 2

$\frac{3+5+6}{7}=\frac{14}{7}=2$

already have same denominator!

2. $-\frac{2}{8}+\frac{7}{8}-\frac{5}{8}=$ 0

$\frac{-2+7-5}{8}=\frac{0}{8}=0$

3. $21\frac{5}{12}+4\frac{1}{4}=$ $25\frac{2}{3}$

$21\frac{5}{12}+4\frac{3}{12}=25\frac{8}{12}=25\frac{2}{3}$ ($\div 4$)

LCM(12,4)=12

4. $15\frac{3}{4}-(-2\frac{3}{4})=$ $18\frac{1}{2}$

$15\frac{3}{4}+2\frac{3}{4}=17\frac{6}{4}$

$17+1\frac{1}{2}$

$18\frac{1}{2}$

5. $22\frac{2}{11}-3\frac{8}{11}=$ $18\frac{5}{11}$

$2\overset{1}{2}\frac{13}{11}$ ($\leftarrow 2+11$)

$-\ 3\frac{8}{11}$

$18\frac{5}{11}$

6. $\frac{5}{6}+\frac{2}{9}=$ $1\frac{1}{18}$

$\frac{5}{6}+\frac{2}{9}=\frac{15}{18}+\frac{4}{18}=\frac{19}{18}$

LCM(6,9)=18

7. $\frac{10}{27}-\frac{5}{18}=$ $\frac{5}{54}$

$\frac{10}{27}\cdot\frac{2}{2}-\frac{5}{18}\cdot\frac{3}{3}=\frac{20}{54}-\frac{15}{54}=\frac{5}{54}$

$27=3\cdot3\cdot3$

$18=2\cdot3\cdot3$

$LCM(27,18)=2\cdot\underbrace{3\cdot3\cdot3}_{27}=54$

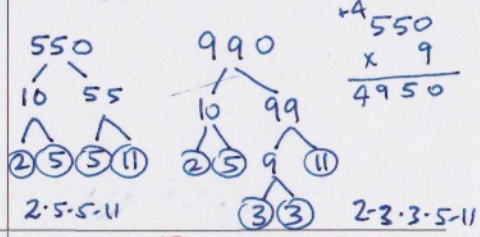
8. Use the prime factorization of 550 and 990 to find:

(a) GCF(550, 990)= $2\cdot5=10$

(b) LCM(550, 990)= 4950

$\underbrace{2\cdot5\cdot5\cdot11}\cdot3\cdot3$

$550\cdot9=$



9. $2\times\frac{2}{27}\times1\frac{1}{10}=$ $\frac{22}{135}$

$\frac{1}{1}\cdot\frac{2}{27}\cdot\frac{11}{10_5}=\frac{22}{135}$

10. $\frac{6}{7}\div2\frac{1}{3}=$ $\frac{18}{49}$

$\frac{6}{7}\div\frac{7}{3}=\frac{6}{7}\cdot\frac{3}{7}=\frac{18}{49}$

2nd 1st order of operations!

11. $\frac{4}{5}+\frac{1}{6}\times\frac{4}{5}=$ $\frac{14}{15}$

$\frac{4}{5}+\frac{1}{6_3}\times\frac{4^2}{5}$

$\frac{4}{5}\cdot\frac{3}{3}+\frac{2}{15}=\frac{12}{15}+\frac{2}{15}=\frac{14}{15}$

LCD(5,15)=15

12. $(1\frac{2}{3})^2+(\frac{7}{9})^0=$ $3\frac{7}{9}$

$1\frac{2}{3}\cdot1\frac{2}{3}+1$

$\frac{5}{3}\cdot\frac{5}{3}+1$

$\frac{25}{9}+1$

$2\frac{7}{9}+1$

$3\frac{7}{9}$

recall: $\sqrt{x^2} = |x|$

13. Find the average of the set $\{5, 8\frac{1}{3}, 2\frac{2}{3}, \frac{1}{5}\}$.

① sum $5 + 8\frac{1}{3} + 2\frac{2}{3} + \frac{1}{5}$

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

$5 + 11 + \frac{1}{5}$

$16\frac{1}{5}$

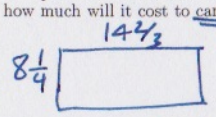
② quotient $16\frac{1}{5} \div 4$

$\frac{81}{5} \div \frac{4}{1} = \frac{81}{5} \cdot \frac{1}{4} = \frac{81}{20}$

$= 4\frac{1}{20}$

$4\frac{1}{20}$

14. A rectangular room is $14\frac{2}{3}$ feet long by $8\frac{1}{4}$ feet wide. If carpet costs \$4 per square foot, how much will it cost to carpet the room? \$484



area

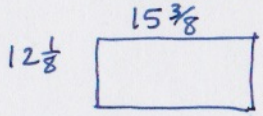
area $= LW = 8\frac{1}{4} \cdot 14\frac{2}{3}$

$= \frac{33}{4} \cdot \frac{44}{3} = \frac{121}{1} = 121$ sq ft

Cost $121 \text{ sqft}, \frac{\$4}{\text{sq ft}} =$

\$484

15. A rectangular field is $15\frac{3}{8}$ yards by $12\frac{1}{8}$ yards. Fencing costs \$6 per yard. How much would it cost to enclose the field in a fence?



perimeter

perimeter $= 2L + 2W$ or $L + L + W + W$

$12\frac{1}{8} + 12\frac{1}{8} + 15\frac{3}{8} + 15\frac{3}{8}$

$24\frac{2}{8} + 30\frac{6}{8} = 54\frac{8}{8} = 55$ yds

Cost $55 \text{ yds} \cdot \frac{\$6}{\text{yds}} = \$330$

\$330

3
55
× 6
330

16. Put the fractions in increasing order:

$\frac{3}{5}, \frac{3}{4}, \frac{5}{8}$

LCM(5, 4, 8) = 40

$\frac{3}{5} \cdot \frac{8}{8} = \frac{24}{40}$ ← smallest

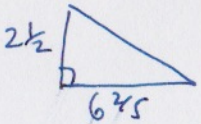
$\frac{3}{4} \cdot \frac{10}{10} = \frac{30}{40}$ ← largest

$\frac{5}{8} \cdot \frac{5}{5} = \frac{25}{40}$

$\frac{3}{5}, \frac{5}{8}, \frac{3}{4}$

17. Find the area of a right triangle with legs $2\frac{1}{2}''$ and $6\frac{2}{5}''$.

$A = \frac{LW}{2}$



$A = \frac{2\frac{1}{2} \cdot 6\frac{2}{5}}{2}$

$2\frac{1}{2} \cdot 6\frac{2}{5} = \frac{5}{2} \cdot \frac{32}{5} = \frac{16}{1} = 16$

$A = \frac{16}{2} = 8$ sq in

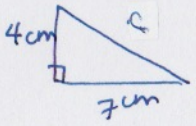
8 in^2

18. $\sqrt{16^2} - \frac{100}{5} =$ −4

$16 - 20$

-4

19. Find the hypotenuse of a right triangle with legs 7cm and 4cm.



Pythagorean Theorem gives:

$4^2 + 7^2 = c^2$

$16 + 49 = c^2$

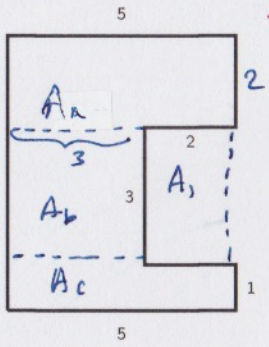
$\sqrt{65} = \sqrt{c^2}$

$\sqrt{65} = c$

hypotenuse is $\sqrt{65}$ cm

20. Find the area of the shape below. Assume all angles are right angles and measurements are in feet.

24 sqft



A = LW

entire area is rectangle − bite A_1

Area $= 6 \cdot 5 - 2 \cdot 3$

$30 - 6$

24 ft^2

or decompose (many options)

for example $A_a + A_b + A_c =$

$5 \cdot 2 + 3 \cdot 3 + 5 \cdot 1 =$

$10 + 9 + 5 = 24$

End of Test 1