

You MUST show your work to receive full credit. Express all your answers in lowest terms.  
This exam is worth 100 points (4 points per problem).

1. Which of the following are proper fractions?  
(Circle your answers)

$$\frac{1}{2} \quad \frac{9}{4} \quad \frac{1}{3} \quad \frac{6}{1} \quad \frac{3}{4} \quad \frac{5}{8}$$

2. Which of the following are improper fractions?  
(Circle your answers)

$$\frac{2}{3} \quad \frac{8}{5} \quad \frac{4}{5} \quad \frac{1}{3} \quad \frac{1}{2} \quad \frac{3}{1}$$

3. Find an equivalent fraction for  $\frac{2}{3}$ . \_\_\_\_\_

4. Write 520 as a product of prime numbers. \_\_\_\_\_

5. Write  $\frac{310}{420}$  in its lowest terms. \_\_\_\_\_

- (6-17) Perform each indicated operation or operations.

6.  $\frac{2}{3} \cdot \frac{7}{8} \cdot 6$

7.  $\frac{-4}{7X} \cdot \frac{5}{28} \cdot \frac{35X}{40}$

8.  $4\frac{2}{3} \cdot 1\frac{1}{7}$

9.  $2\frac{1}{4} \div 4\frac{1}{2}$

10.  $\frac{11Y}{20} \div \frac{7XY}{40}$

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

12.  $\left(\frac{-3}{4}\right)^3$

13.  $\frac{1}{2} \cdot \frac{2}{5} + \left(\frac{2}{5}\right)^2$

14.  $\frac{-4}{7} \div \frac{3}{5} + \frac{2}{3} - \frac{2}{7}$

15.  $\frac{\frac{2}{5} + \frac{2}{3}}{\frac{4}{15}}$

16.  $6\frac{2}{3} + 3\frac{4}{15}$

17.  $5\frac{2}{5} - 3\frac{3}{4}$

(18 - 19) Find the LCD for each of the following:

18.  $\frac{7}{12}$  ,  $\frac{4}{25}$

19.  $\frac{8XY}{21XY^3Z}$  ,  $\frac{-42Y}{36X^2YZ^2}$

(20 - 23) Solve each equation for X

20.  $X + \frac{1}{5} = -\frac{2}{3}$

21.  $2X - \frac{3}{4} = \frac{4}{9}$

22.  $\frac{2X}{3} + 5 = \frac{3}{4}$

23.  $\frac{x}{6} - 4 = -\frac{1}{2}$

(24 - 25) Let  $x = -\frac{1}{6}$  and  $y = \frac{3}{4}$

24. Find  $x^2 + y$

25. Find  $4x - 2y$

**BONUS PROBLEMS**

4 points each

(all or nothing)

1. Solve for x:

$$\frac{1}{20}x - \frac{1}{4} + \frac{3}{5} = -\frac{1}{2}x + \frac{1}{4}x$$

2. Find the LCM for:

$$320x^6y^6z^3$$

$$150x^2y^5z^7$$

$$60x^8z^9w$$

Answers to Chapter 4 (Va)  
practice test

Bonus

(1)  $x = -\frac{7}{6}$

(2)  $2^6 \cdot 3 \cdot 5^2 \cdot x^8 y^6 z^9 w$   
 $= \boxed{4800 x^8 y^6 z^9 w}$

(1)  $\frac{1}{2}, \frac{1}{3}, \frac{3}{4}, \frac{5}{8}$

(12)  $\left(\frac{-3}{4}\right)^3 = \boxed{\frac{-27}{64}}$

(2)  $\frac{8}{5}, \frac{3}{1}$

(13)  $\frac{1}{2}, \frac{2}{5} + \left(\frac{2}{5}\right)^2 = \frac{1}{5} + \frac{4}{25}$   
 $= \frac{5}{25} + \frac{4}{25} = \boxed{\frac{9}{25}}$

(3)  $\frac{2}{3} \cdot \frac{2}{2} = \frac{4}{6}$

(14)  $\frac{-4}{7} \cdot \frac{5}{3} + \frac{2}{3} - \frac{2}{7}$

(4)  $a \overline{)520} = 2^3 \cdot 5 \cdot 13$   
 $a \overline{)260}$   
 $a \overline{)130}$   
 $5 \overline{)65}$   
 13

$\frac{-20}{21} + \frac{2}{3} - \frac{2}{7} = \frac{-20}{21} + \frac{14}{21} - \frac{6}{21}$   
 $= \frac{-20+14}{21} = \frac{-6}{21} = \boxed{\frac{-4}{7}}$

(5)  $\frac{310}{420} = \boxed{\frac{31}{42}}$

(15)  $\left(\frac{2}{5} + \frac{2}{3}\right) \cdot \frac{5}{4} = \left(\frac{6}{15} + \frac{10}{15}\right) \cdot \frac{5}{4}$   
 $= \frac{16}{15} \cdot \frac{5}{4} = \boxed{4}$

(6)  $\frac{1}{3} \cdot \frac{2}{8} \cdot \frac{6}{1} = \boxed{\frac{7}{2}}$

(16)  $6\frac{2}{3} + 3\frac{4}{15} = 6\frac{10}{15} + 3\frac{4}{15} = \boxed{9\frac{14}{15}}$

(7)  $\frac{-4}{7x} \cdot \frac{8}{28} \cdot \frac{35x}{40} = \boxed{\frac{-5}{56}}$

(17)  $5\frac{2}{5} - 3\frac{3}{4} = 5\frac{8}{20} - 3\frac{15}{20}$   
 $= 4\frac{28}{20} - 3\frac{15}{20} = \boxed{1\frac{13}{20}}$

(9)  $2\frac{1}{4} \div 4\frac{1}{2} = \frac{9}{4} \div \frac{9}{2} = \frac{9}{4} \cdot \frac{2}{9} = \boxed{\frac{1}{2}}$

(18)  $12 = 2^2 \cdot 3$   
 $25 = 5^2$   
 $lcm = 2^2 \cdot 3 \cdot 5^2 = \boxed{300}$

(8)  $4\frac{2}{3} \cdot 1\frac{1}{7} = \frac{14}{3} \cdot \frac{8}{7} = \boxed{\frac{16}{3}}$

(19)  $21x^2y^3z = 3 \cdot 7$   
 $36x^2y^3z^2 = 2^2 \cdot 3^2$   
 $lcm = 2^2 \cdot 3^2 \cdot 7 \cdot x^2 y^3 z^2$   
 $= \boxed{252 x^2 y^3 z^2}$

(10)  $\frac{11y}{20} \cdot \frac{40}{7xy} = \boxed{\frac{22}{7x}}$

(20)  $x = -\frac{13}{15}$  (22)  $x = -\frac{51}{8}$

(11)  $\left(\frac{1}{3}\right)^2 \cdot \frac{1}{2} = \frac{1}{9} \cdot \frac{1}{2} = \boxed{\frac{1}{18}}$

(21)  $x = \frac{43}{72}$  (23)  $x = 21$   
 (24) 7 (25) -13