Basic Skills Test **Name**_____

Conceptual Questions

1pt 1. What is the first step when adding or subtracting mixed numbers or fractions?

FIND A COMMON DENOMINATOR

1pt 2. What is the first step when multiplying or dividing mixed numbers?

CREATE IMPROPER FRACTIONS

1pt 3. What is the definition of "Integer"?

POSITIVE OR NEGATIVE WHOLE NUMBER

3pts 4. Illustrate the borrowing idea with this problem.

$$25\frac{1}{3} - 20\frac{3}{4}$$

$25-20$; $\frac{4-9}{12}$: SPLIT WHOLE & FRACTIONS

$5 \quad -5/12$ } : BORROW AND CREATE EQUIVALENT STATEMENT

$4\ 12/12 - 5/12$ }

$4\ 7/12$

Knowing the Squares

1pt 1. $15^2 =$ 1. 225

1pt 2. $17^2 =$ 2. 289

1pt 3. $18^2 =$ 3. 324

1pt 4. $19^2 =$ 4. 361

1pt 5. $21^2 =$ 5. 441

1pt 6. $22^2 =$ 6. 484

1pt 7. $23^2 =$ 7. 529

1pt 8. $25^2 =$ 8. 625

Addind and Subtracting Integers

1. $23-(-17)-5$ — 1pts — 1. 35

$23+17-5$

$40-5$

2. $-17+(-13)+3$ — 1pt — 2. -27

$-17-13+3$

$-30+3$

3. $15-(-3)+2$ — 1pt — 3. 20

$15+3+2$

$18+2$

Multiplying and Dividing Integers

4. $12\div(-3)(11)$ — 1pt — 4. -44

$-4(11)$

-44

5. $(-4)(-3)\div 2(-6)$ — 1pt — 5. -36

$12\div 2(-6)$

$6(-6)$

6. $-5\cdot -3\cdot 0\cdot 7$ — 1pt — 6. 0

$15\cdot 0\cdot 7$

$0\cdot 7$

0

Addind and Subtracting Rationals

7. $-8\frac{3}{8}+4\frac{1}{2}-5\frac{3}{4}$ — 1pt — 7. $-9\frac{5}{8}$

$-8+4-5 \;\vdots\; \frac{-3+4-6}{8}$

$-9\ -5/8$

8. $-\frac{3}{8}-4\frac{2}{5}-7\frac{7}{10}$ — 1pt — 8. $-12\frac{19}{40}$

$-4\ -7 \;\vdots\; \frac{-15-16-28}{40}$

$-11\ -59/40$

$-12\ 19/40$

Multiplying and Dividing Rationals

1pt 9. $\left(-\frac{1}{5}\right) \div \frac{2}{15} \bullet \left(-1\frac{1}{7}\right)$

$\frac{-1}{5_1} \cdot \frac{3\,15}{2_1} \cdot \frac{-8}{7}^{4}$

$+\frac{12}{7}$

9. $+1\,5/7$

1pt 10. $\left(-9\frac{2}{3}\right) \div 10 \bullet 4\frac{3}{8}$

$\frac{-29}{3} \cdot \frac{1}{\cancel{10}_2} \cdot \frac{\cancel{35}^{7}}{8} = \frac{-203}{48} = -4\,11/48$

10. $-4\,11/48$

1pt 11. $\left(-\frac{2}{11}\right) \bullet 7\frac{1}{3} \bullet \left(-10\frac{1}{4}\right) \div \frac{2}{3}$

$\frac{-\cancel{2}^{1}}{\cancel{11}_1} \cdot \frac{\cancel{33}^{3}}{\cancel{3}_1} \cdot \frac{-41}{\cancel{4}_2} \cdot \frac{\cancel{3}}{\cancel{2}_1}$

$\frac{41}{2} = 20\,1/2$

11. $20\,1/2$

Order of Operations **Show your work!**

6pts 12. $6[3-(-4+2)\div 2]$

$6[3-(-2)\div 2]$

$6[3-(-1)]$

$6[4]$

24

6pts 13. $\frac{2}{3}\left[8(2-5)^2+3\bullet 2\right]$

$\frac{2}{3}\left[8(-3)^2+3\cdot 2\right]$

$\frac{2}{3}\left[8(9)+3\cdot 2\right]$

$\frac{2}{3}\left[72+6\right]$

$\frac{2}{3}\left[\frac{\overset{26}{\cancel{78}}}{1}\right]$

52

Order of Operations

6pts 14. $12-4\left[2-(-3+5)-8\right]$

$12-4[2-(2)-8]$

$12-4[0-8]$

$12-4[-8]$

$12--32$

44

6pts 15. $\dfrac{8^2-6(4)}{2(5)}+4$

$\dfrac{64-6(4)}{2(5)}+4$

$\dfrac{64-24}{10}+4$

$\dfrac{40}{10}+4$

$4+4$

8

(Show all work since answers given)

6pts 16. $\left(\frac{1}{2}\right)^2+\left[\frac{1}{5}-\frac{2}{3}\cdot\frac{6}{7}\div\frac{5}{14}+\frac{2}{5}\right]=-\frac{3}{4}$

$\frac{1}{4}+\left[\frac{1}{5}-\frac{2}{3}\cdot\frac{6^2}{7}\cdot\frac{14^2}{5}+\frac{2}{5}\right]$

$\frac{1}{4}+\left[\frac{1}{5}-\frac{8}{5}+\frac{2}{5}\right]$

$\frac{1}{4}+\left[\frac{-5}{5}\right]$

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

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

$\frac{-3}{4}$

6pts 17. $\left[\frac{1}{6}\div\frac{5}{9}-\left(\frac{1}{5}\right)^2\right]-\frac{7}{10}=-\frac{11}{25}$

$\left[\frac{1}{6_2}\cdot\frac{9^3}{5}-\frac{1}{25}\right]-\frac{7}{10}$

$\left[\frac{3}{10}-\frac{1}{25}\right]-\frac{7}{10}$

$\frac{15-2}{50}-\frac{35}{50}$

$\frac{13}{50}-\frac{35}{50}$

$\frac{-22}{50}$

$\frac{-11}{25}$

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Exploring Patterns

1pt A. 5, 10, 12, 24, 26, ___52___, ___54___, ___108___

·2 +2 ·2 +2 ·2

1pt B. 33, 39, 40, 47, 48, 56, 57, ___66___, ___67___, ___77___

+6 +1 +7 +1 +8 +1

1pt C. 4, 7, 12, 19, 28, 39, 52, ___67___, ___84___, ___103___

+3 +5 +7 +9 +11 +13

1pt D. 12, 10, 20, 22, 11, 8, 24, 27, 9, 5, 20, ___24___, ___6___, ___1___, ___5___

-2 ·2 +2 ÷2 -3 ·3 +3 ÷3 -4 ·4 +4 ÷4 -5 ·5

If you have finished early go back and rework your problems. Check for sign mistakes and or addition mistakes.

6pts #22 $12\left[\frac{3}{8}\cdot\frac{2}{9}-\frac{3}{10}\div 4\frac{1}{2}\right]$

$12\left[\frac{1}{12}-\frac{3}{10}\div\frac{9}{2}\right]$

$12\left[\frac{1}{12}-\frac{3}{10}\cdot\frac{2}{9}\right]$

$12\left[\frac{1}{12}-\frac{1}{15}\right]$

$12\left[\frac{5-4}{60}\right]$

$12\left[\frac{1}{60}\right]$

$\frac{1}{5}$