MATH 016 FINAL EXAM

The final exam would consist of 50 questions. One question would be randomly selected from each of the following categories.

1. ***Addition and subtraction of two integers (without parentheses: $-a+b$ or $b-a$).***

   Compute if possible or write 'undefined'. Make sure that you use the '=' sign correctly.

   (a) $-5+7$

   (b) $-9+6$

   (c) $4-9$

   (d) $6-11$

   (e) $-11+8$

   (f) $3-6$

   (g) $-2+9$

   (h) $12-13$

   (i) $-1+6$

   (j) $0-9$

   (k) $-6+7$

   (l) $4-10$

   (m) $-10+6$

   (n) $0-5$

   (o) $-8+8$

   (p) $1-9$

   (q) $-6+6$

   (r) $5-8$

   (s) $-4+3$

   (t) $0-1$

2. ***Addition and subtraction of two integers (without parentheses: $-a-b$).***

   Compute if possible or write 'undefined'.

(a) $-4-6$

(b) $-1-1$

(c) $-5-3$

(d) $-2-0$

(e) $-1-3$

(f) $-0-4$

(g) $-6-6$

(h) $-6-4$

(i) $-8-0$

(j) $-3-3$

(k) $-9-2$

(l) $-8-2$

(m) $-32-1$

(n) $-1-26$

(o) $-0-35$

(p) $-5-3$

(q) $-2-14$

(r) $-0-15$

(s) $-7-5$

(t) $-12-2$

3. ***Addition and subtraction of more than two integers without the use of parentheses.***

   Compute if possible or write 'undefined'.

   (a) $-2+3-4-5$

   (b) $9-5-1-3+4$

   (c) $3-4+2-1$

   (d) $-5-0-4+2$

   (e) $2-2-2$

   (f) $-7-5+1$

(g) $0 - 4 + 5 + 1$

(h) $5 - 5 - 14$

(i) $1 - 4 - 1 + 3$

(j) $-2 + 1 - 3$

(k) $2 - 1 - 1 + 4$

(l) $-4 - 10 + 3$

(m) $10 - 12 - 12$

(n) $-6 - 5 - 11 + 1$

(o) $6 - 5 - 1 + 6$

(p) $3 - 10 + 7 - 1$

(q) $0 - 3 + 5 - 1$

(r) $7 - 1 - 3 - 6$

(s) $10 - 4 - 10 + 4$

(t) $0 - 12 - 1 - 1$

4. ***Addition and subtraction of two or more integers with the use of parentheses at most twice.***

   Compute if possible or write 'undefined'.

   (a) $3 - 9 - (-4)$

   (b) $4 + (-6) - (-5)$

   (c) $-5 - (-2)$

   (d) $-5 + (-3) + 6$

   (e) $-(-4) - 3 + (-3)$

   (f) $-(-9) - 6 - (-1)$

   (g) $-(-3) + (-5)$

   (h) $3 - 2 - (-3)$

   (i) $5 + (-10) - (-5)$

   (j) $-1 - (-2)$

   (k) $-7 + (-4) + 9$

   (l) $-(-2) - 1 + (-4)$

(m) $-(-8) - 9 - (-1)$

(n) $-(-10) + (-11)$

(o) $-5 - 0 - (-7)$

(p) $3 + (-6) - (-13)$

(q) $-2 - (-2)$

(r) $-12 + (-3) + 14$

(s) $-(-6) - 9 + (-9)$

(t) $-(-1) - 6 - (-1)$

5. ***Multiplication of two integers.***

Compute if possible or write 'undefined'.

(a) $-5(-3)$

(b) $4(-6)$

(c) -6×7

(d) $-6(-2)$

(e) $7(-5)$

(f) -1×15

(g) $-1(-12)$

(h) $5(-5)$

(i) -3×9

(j) $-11(-2)$

(k) $0(-16)$

(l) -8×8

(m) $-7(-7)$

(n) $6(-6)$

(o) -19×0

(p) $-7(-0)$

(q) $2(-7)$

(r) -1×18

(s) $-3(-3)$

(t) $0(-40)$

6. ***Multiplication of more than two integers.***

Compute if possible or write 'undefined'.

(a) $-2 \times (-1) \times 5$

(b) $4 \times 6 \times (-1)$

(c) $-4(-1)(-5)$

(d) $4 \times (-9) \times 0 \times 8$

(e) $-1 \times 4 \times (-2) \times (-1)$

(f) $-3 \times (-2) \times 2$

(g) $7 \times 15 \times 0 \times (-1)$

(h) $-1(-1)(-15)$

(i) $4 \times (-2) \times 1 \times 8$

(j) $-5 \times 2 \times (-8) \times (-1)$

(k) $-5 \times (-5) \times 2$

(l) $12 \times 1 \times (-1)$

(m) $-4(-4)(-4)$

(n) $10 \times (-9) \times 3 \times 0$

(o) $2 \times 4 \times (-2) \times (-2)$

(p) $-9 \times (-9) \times (-1)$

(q) $4(-1)(-2)$

(r) $-1(-1)(-1)$

(s) $5 \times (-2) \times 18$

(t) $-3 \times 4 \times (-2) \times (-1)$

7. ***Division of integers using fraction notation.***

Compute if possible or write 'undefined'.

(a) $\frac{15}{-3}$

(b) $\frac{-6}{-2}$

(c) $\frac{-16}{4}$

(d) $\frac{0}{7}$

(e) $\frac{-16}{0}$

(f) $\frac{15}{15}$

(g) $\frac{-13}{13}$

(h) $\frac{0}{0}$

(i) $\frac{0}{17}$

(j) $\frac{16}{-16}$

(k) $\frac{1}{-1}$

(l) $\frac{18}{-1}$

(m) $\frac{-25}{5}$

(n) $\frac{0}{-1}$

(o) $\frac{25}{0}$

(p) $\frac{19}{19}$

(q) $\frac{-12}{-12}$

(r) $\frac{-42}{7}$

(s) $\frac{0}{-15}$

(t) $\frac{-0}{0}$

8. ***Division of integers using "÷".***

   Compute if possible or write 'undefined'.

   (a) $10 \div (-5)$

   (b) $-4 \div (-2)$

   (c) $(-20) \div 4$

   (d) $0 \div (-6)$

   (e) $(-3) \div 0$

   (f) $10 \div (-10)$

   (g) $-5 \div (-5)$

   (h) $(-10) \div 2$

   (i) $0 \div (-16)$

   (j) $(-25) \div 0$

(k) $1 \div (-1)$

(l) $0 \div (-0)$

(m) $(-8) \div (-8)$

(n) $12 \div (-6)$

(o) $(-1) \div 0$

(p) $60 \div (-10)$

(q) $-16 \div (-8)$

(r) $(-81) \div 9$

(s) $0 \div (-9)$

(t) $1 \div 0$

9. ***Addition of two fractions (positive and negative). Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{3}{5} + \left(-\frac{2}{3}\right)$

(b) $-\left(-\frac{3}{8}\right) + \frac{3}{2}$

(c) $-\frac{4}{9} + \frac{-5}{12}$

(d) $-\frac{3}{14} + \frac{5}{7}$

(e) $-\left(-\frac{2}{3}\right) + \frac{3}{11}$

(f) $-\frac{1}{6} + \frac{-3}{10}$

(g) $\frac{-7}{3} + \frac{3}{2}$

(h) $-\left(-\frac{2}{5}\right) + \frac{3}{2}$

(i) $-\frac{4}{5} + \frac{-13}{15}$

(j) $-\frac{3}{7} + \frac{7}{2}$

(k) $-\left(-\frac{7}{6}\right) + \frac{5}{2}$

(l) $\frac{-4}{9} + \frac{5}{6}$

(m) $\frac{2}{3} + \frac{-3}{5}$

(n) $-\left(-\frac{1}{5}\right) + \frac{-1}{2}$

(o) $\frac{4}{7} - \left(-\frac{2}{9}\right)$

(p) $-\frac{-4}{9} + \frac{-3}{6}$

(q) $\frac{-2}{3} + \frac{-3}{5}$

(r) $-\left(-\frac{2}{3}\right) + \frac{-7}{4}$

(s) $-\frac{-2}{15} + \frac{-3}{10}$

(t) $-\frac{1}{2} + \frac{-2}{5}$

(u) $-\left(-\frac{4}{25}\right) + \frac{4}{5}$

(v) $\frac{7}{2} + \frac{-14}{4}$

(w) $\frac{3}{5} + \left(-\frac{1}{2}\right)$

10. ***Subtraction of two fractions (positive and negative). Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{5}{3} - \frac{3}{4}$

(b) $\frac{3}{2} - \left(-\frac{5}{6}\right)$

(c) $-\frac{3}{4} - \frac{4}{5}$

(d) $\frac{-4}{5} - \frac{13}{15}$

(e) $-\frac{5}{3} - \frac{-3}{4}$

(f) $\frac{2}{3} - \frac{3}{2}$

(g) $\frac{-3}{2} - \left(-\frac{5}{6}\right)$

(h) $-\frac{1}{2} - \frac{-4}{5}$

(i) $\frac{-3}{4} - \frac{13}{12}$

(j) $\frac{7}{3} - \frac{-3}{4}$

(k) $\frac{-1}{3} - \frac{3}{4}$

(l) $\frac{9}{7} - \left(-\frac{1}{14}\right)$

(m) $-\frac{2}{9} - \frac{1}{15}$

(n) $\frac{-2}{3} - \frac{1}{21}$

(o) $-\frac{7}{10} - \frac{-2}{5}$

(p) $-\frac{5}{3} - \frac{-3}{4}$

(q) $\frac{4}{3} - \left(-\frac{1}{6}\right)$

(r) $-\frac{7}{5} - \frac{5}{4}$

(s) $\frac{-2}{11} - \frac{1}{2}$

(t) $\frac{3}{4} - \frac{-5}{3}$

11. ***Additions and subtractions of more than two fractions (positive and negative). Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-\frac{1}{2} - \left(-\frac{3}{4}\right) + \frac{5}{3}$

(b) $-\frac{5}{3} - \left(-\frac{3}{4}\right) + \frac{1}{2}$

(c) $-\frac{1}{2} - \left(\frac{-3}{4}\right) + \frac{7}{4}$

(d) $\frac{-1}{2} - \left(\frac{1}{4}\right) + \frac{1}{8} + \frac{-3}{4}$

(e) $-\frac{2}{7} - \left(-\frac{1}{14}\right) + \frac{5}{2}$

(f) $-\frac{3}{4} - \left(-\frac{1}{3}\right) + \frac{4}{3}$

(g) $-\frac{1}{2} - \left(\frac{-1}{4}\right) + \frac{3}{8}$

(h) $\frac{-5}{4} - \left(\frac{2}{3}\right) + \frac{7}{4} + \frac{-1}{12}$

(i) $-\frac{2}{3} - \left(-\frac{1}{4}\right) + \frac{1}{2}$

(j) $\frac{-5}{3} - \left(-\frac{3}{2}\right) + \frac{1}{4}$

(k) $-\frac{5}{3} - \left(\frac{-3}{2}\right) + \frac{7}{6}$

(l) $\frac{-2}{7} - \left(\frac{3}{14}\right) + \frac{1}{2} + \frac{-2}{7}$

(m) $-\frac{2}{3} - \left(-\frac{1}{6}\right) - \frac{5}{3}$

(n) $-\frac{5}{4} - \left(-\frac{3}{8}\right) + \frac{3}{2}$

(o) $-\frac{7}{15} - \left(\frac{-2}{3}\right) + \frac{3}{5}$

(p) $\frac{-3}{11} - \left(\frac{1}{2}\right) + \frac{-1}{11} + \frac{-3}{22}$

(q) $\frac{-3}{7} - \left(-\frac{3}{2}\right) + \frac{-5}{4}$

(r) $-\frac{5}{6} - \left(-\frac{1}{4}\right) + \frac{-3}{2}$

(s) $-\frac{4}{5} - \left(\frac{3}{10}\right) + \frac{-3}{4}$

(t) $\frac{-1}{3} - \left(\frac{-1}{6}\right) + \frac{5}{2} + \frac{-3}{4}$

12. ***Addition of fractions and integers. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{5}{4} + 2$

(b) $-1 + \frac{3}{5}$

(c) $\frac{-5}{3} + 3$

(d) $-2 + \frac{-7}{5}$

(e) $8 - \frac{4}{11}$

(f) $-11 + \left(-\frac{3}{2}\right)$

(g) $\frac{-6}{13} + 1$

(h) $4 + \frac{-3}{7}$

(i) $\frac{3}{7} + 7$

(j) $-5 + \frac{2}{5}$

(k) $\frac{-1}{4} + 4$

(l) $-3 + \frac{-2}{3}$

(m) $\frac{-2}{15} + 1$

(n) $-4 + \frac{10}{11}$

(o) $\frac{2}{7} + (-1)$

(p) $-3 + \frac{-1}{5}$

(q) $\frac{-1}{3} + 3$

(r) $-5 + \frac{3}{5}$

(s) $\frac{-2}{9} + 2$

(t) $-3 + \left(-\frac{5}{2}\right)$

13. ***Subtraction of fractions and integers. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{1}{3} - 1$

(b) $1 - \frac{5}{3}$

(c) $-2 - \frac{4}{7}$

(d) $-1 - \left(-\frac{5}{3}\right)$

(e) $\frac{-7}{3} - (-3)$

(f) $\frac{-1}{5} - 1$

(g) $2 - \frac{5}{2}$

(h) $-3 - \frac{4}{5}$

(i) $-1 - \left(-\frac{1}{3}\right)$

(j) $\frac{-7}{2} - (-2)$

(k) $-\frac{2}{9} - 1$

(l) $-1 - \frac{5}{9}$

(m) $-3 - \frac{-2}{3}$

(n) $-4 - \left(-\frac{1}{4}\right)$

(o) $-\frac{-2}{3} - (-1)$

(p) $\frac{2}{5} - 5$

(q) $2 - \frac{1}{11}$

(r) $-5 - \frac{5}{3}$

(s) $-4 - \left(-\frac{3}{2}\right)$

(t) $\frac{-1}{6} - (-1)$

(u) $\frac{5}{6} - 6$

(v) $6 - \frac{-2}{3}$

(w) $-7 - \frac{4}{3}$

(x) $-2 - \left(-\frac{7}{2}\right)$

(y) $\frac{-11}{5} - (-2)$

14. ***Multiplication of fractions and integers using two factors either both positive or both negative. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-3 \times \left(-\frac{4}{3}\right)$

(b) $\left(-\frac{2}{5}\right)(-10)$

(c) $-12 \times \left(\frac{-4}{9}\right)$

(d) $15 \times \frac{4}{21}$

(e) $-9 \times \left(-\frac{2}{3}\right)$

(f) $\left(-\frac{7}{5}\right)(-5)$

(g) $-16 \times \left(\frac{-9}{4}\right)$

(h) $18 \times \frac{2}{21}$

(i) $-14 \times \left(-\frac{5}{7}\right)$

(j) $\left(-\frac{1}{15}\right)(-10)$

(k) $-25 \times \left(\frac{-4}{15}\right)$

(l) $-8 \times \frac{-1}{12}$

(m) $-9 \times \left(-\frac{11}{6}\right)$

(n) $\left(-\frac{4}{21}\right)(-14)$

(o) $-36 \times \left(\frac{-5}{12}\right)$

(p) $81 \times \frac{2}{9}$

(q) $-5 \times \left(-\frac{3}{20}\right)$

(r) $\left(-\frac{1}{40}\right)(-8)$

(s) $-49 \times \left(\frac{-2}{21}\right)$

(t) $7 \times \frac{9}{14}$

15. ***Multiplication of fractions and integers using two factors with different signs. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $3\left(-\frac{4}{5}\right)$

(b) $\left(-\frac{2}{3}\right) \times 4$

(c) $5\left(-\frac{3}{10}\right)$

(d) $3\left(-\frac{4}{5}\right)$

(e) $\left(-\frac{1}{5}\right) \times 6$

(f) $8\left(-\frac{-3}{10}\right)$

(g) $3\left(-\frac{2}{7}\right)$

(h) $\left(-\frac{2}{5}\right) \times 15$

(i) $-9\left(\frac{-2}{15}\right)$

(j) $36\left(-\frac{4}{6}\right)$

(k) $\left(-\frac{1}{6}\right) \times 4$

(l) $7\left(-\frac{-3}{10}\right)$

(m) $14\left(-\frac{5}{28}\right)$

(n) $\left(-\frac{3}{5}\right) \times 3$

(o) $16\left(\frac{-1}{24}\right)$

(p) $5\left(-\frac{9}{5}\right)$

(q) $\left(-\frac{5}{11}\right) \times 2$

(r) $11\left(\frac{-3}{22}\right)$

(s) $12\left(-\frac{3}{16}\right)$

(t) $\left(-\frac{7}{6}\right) \times 9$

16. ***Multiplication of fractions and integers using more than two factors and with the presence of parentheses once. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{79}{3} \times \left(-\frac{2}{5}\right) \times \frac{6}{79}$

(b) $\frac{91}{4} \times \left(-\frac{2}{5}\right) \times \frac{10}{91}$

(c) $4 \times \frac{3}{7} \times \left(-\frac{3}{2}\right)$

(d) $\frac{35}{16} \times \left(\frac{-1}{7}\right) \times 8$

(e) $\frac{96}{5} \times \left(-\frac{2}{3}\right) \times \frac{35}{96}$

(f) $\frac{-59}{3} \times \left(-\frac{6}{5}\right) \times \frac{15}{59}$

(g) $8 \times \frac{36}{5} \times \left(-\frac{3}{48}\right)$

(h) $\frac{-40}{15} \times \left(\frac{-1}{8}\right) \times 5$

(i) $\frac{43}{3} \times \left(-\frac{7}{3}\right) \times \frac{42}{43}$

(j) $\frac{78}{9} \times \left(-\frac{3}{10}\right) \times \frac{5}{78}$

(k) $11 \times \frac{-5}{2} \times \left(-\frac{3}{22}\right)$

(l) $\frac{67}{12} \times \left(\frac{-4}{67}\right) \times 2$

(m) $\frac{99}{7} \times \left(-\frac{14}{5}\right) \times \frac{10}{99}$

(n) $\frac{120}{7} \times \left(-\frac{3}{10}\right) \times \frac{21}{6}$

(o) $15 \times \frac{-3}{20} \times \left(-\frac{2}{3}\right)$

(p) $\frac{18}{25} \times \left(\frac{-5}{6}\right) \times 2$

(q) $\frac{85}{6} \times \left(-\frac{-3}{2}\right) \times \frac{4}{85}$

(r) $\frac{123}{14} \times \left(-\frac{2}{3}\right) \times \frac{21}{123}$

(s) $4 \times \frac{3}{16} \times \left(-\frac{4}{3}\right)$

(t) $\frac{39}{32} \times \left(\frac{-16}{39}\right) \times 2$

17. ***Multiplication of fractions and integers using more than two factors and with the presence of parentheses twice. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-\frac{20}{3}\left(-\frac{2}{5}\right)\left(-\frac{3}{4}\right)$

(b) $-\frac{7}{3}\left(-\frac{2}{21}\right)\left(-\frac{3}{4}\right)$

(c) $10\left(\frac{-2}{5}\right)\left(-\frac{3}{2}\right)$

(d) $-\frac{15}{14}\left(-\frac{2}{3}\right)\left(-\frac{7}{4}\right)$

(e) $\frac{-11}{3}\left(-\frac{5}{22}\right)\left(-\frac{1}{15}\right)$

(f) $12\left(\frac{-5}{2}\right)\left(-\frac{1}{3}\right)$

(g) $-\frac{30}{7}\left(-\frac{14}{5}\right)\left(-\frac{2}{3}\right)$

(h) $\frac{-9}{10}\left(-\frac{5}{27}\right)\left(-\frac{3}{2}\right)$

(i) $50\left(\frac{-2}{15}\right)\left(-\frac{3}{5}\right)$

(j) $-\frac{25}{3}\left(-\frac{6}{5}\right)\left(-\frac{1}{10}\right)$

(k) $-\frac{17}{3}\left(-\frac{1}{2}\right)\left(-\frac{2}{17}\right)$

(l) $-33\left(\frac{-25}{11}\right)\left(-\frac{1}{5}\right)$

(m) $-\frac{29}{3}\left(-\frac{12}{7}\right)\left(-\frac{2}{29}\right)$

(n) $-\frac{63}{4}\left(-\frac{8}{9}\right)\left(-\frac{3}{7}\right)$

(o) $32\left(\frac{-23}{16}\right)\left(-\frac{1}{23}\right)$

(p) $-\frac{50}{9}\left(-\frac{6}{5}\right)\left(-\frac{3}{5}\right)$

(q) $-\frac{7}{40}\left(-\frac{20}{21}\right)\left(-\frac{1}{2}\right)$

(r) $70\left(\frac{-3}{10}\right)\left(-\frac{3}{7}\right)$

(s) $\frac{-64}{7}\left(-\frac{21}{16}\right)\left(-\frac{5}{4}\right)$

(t) $-\frac{9}{8}\left(-\frac{16}{3}\right)\left(-\frac{1}{3}\right)$

18. ***Division of fractions (positive and negative) using fraction notation. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{-\frac{9}{2}}{-\frac{2}{3}}$

(b) $\frac{-\frac{15}{4}}{\frac{6}{5}}$

(c) $\frac{\frac{7}{5}}{\frac{-2}{15}}$

(d) $\frac{-\frac{15}{7}}{-\frac{5}{14}}$

(e) $\frac{-\frac{28}{3}}{\frac{14}{9}}$

(f) $\frac{\frac{-12}{5}}{\frac{18}{25}}$

(g) $\frac{-\frac{50}{49}}{-\frac{25}{14}}$

(h) $\dfrac{-\frac{21}{8}}{\frac{6}{7}}$

(i) $\dfrac{\frac{24}{5}}{\frac{-8}{15}}$

(j) $\dfrac{-\frac{36}{35}}{-\frac{12}{14}}$

(k) $\dfrac{\frac{-19}{12}}{\frac{19}{4}}$

(l) $\dfrac{\frac{9}{20}}{\frac{-18}{40}}$

(m) $\dfrac{-\frac{11}{2}}{-\frac{33}{4}}$

(n) $\dfrac{-\frac{14}{27}}{\frac{21}{18}}$

(o) $\dfrac{\frac{10}{9}}{\frac{-100}{15}}$

(p) $\dfrac{-\frac{72}{7}}{-\frac{9}{7}}$

(q) $\dfrac{-\frac{6}{35}}{\frac{6}{5}}$

(r) $\dfrac{\frac{-7}{9}}{\frac{-2}{7}}$

(s) $\dfrac{-\frac{5}{2}}{-\frac{2}{5}}$

(t) $\dfrac{-\frac{81}{4}}{\frac{27}{2}}$

19. ***Division of fractions (positive and negative) using "÷". Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-\dfrac{10}{9} \div \left(-\dfrac{2}{3}\right)$

(b) $\dfrac{7}{3} \div \left(-\dfrac{5}{14}\right)$

(c) $\dfrac{-9}{10} \div \left(\dfrac{-3}{4}\right)$

(d) $-\dfrac{15}{14} \div \left(\dfrac{-10}{21}\right)$

(e) $\frac{8}{3} \div \left(-\frac{1}{9}\right)$

(f) $\frac{-12}{11} \div \left(\frac{-3}{22}\right)$

(g) $-\frac{16}{7} \div \left(-\frac{24}{7}\right)$

(h) $\frac{18}{25} \div \left(-\frac{9}{5}\right)$

(i) $\frac{-6}{5} \div \left(\frac{-3}{2}\right)$

(j) $\frac{-36}{49} \div \left(-\frac{18}{14}\right)$

(k) $\frac{14}{15} \div \left(\frac{-5}{14}\right)$

(l) $\frac{-21}{10} \div \left(\frac{3}{2}\right)$

(m) $-\frac{100}{9} \div \left(-\frac{10}{3}\right)$

(n) $\frac{22}{9} \div \left(-\frac{33}{6}\right)$

(o) $\frac{-29}{10} \div \left(\frac{-29}{4}\right)$

(p) $-\frac{1}{27} \div \left(\frac{-9}{2}\right)$

(q) $\frac{20}{3} \div \left(-\frac{5}{6}\right)$

(r) $\frac{-49}{12} \div \left(\frac{-28}{9}\right)$

(s) $-\frac{14}{27} \div \left(-\frac{7}{18}\right)$

(t) $\frac{9}{8} \div \left(\frac{-27}{16}\right)$

20. ***Division of fractions and integers (positive and negative) using fraction notation. Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\frac{\frac{9}{4}}{-2}$

(b) $\dfrac{-4}{\frac{2}{5}}$

(c) $\dfrac{-4}{\frac{-3}{4}}$

(d) $\dfrac{\frac{-10}{3}}{2}$

(e) $\dfrac{-14}{\frac{2}{3}}$

(f) $\dfrac{-15}{\frac{-3}{4}}$

(g) $\dfrac{-\frac{18}{7}}{12}$

(h) $\dfrac{9}{\frac{-3}{5}}$

(i) $\dfrac{-12}{-\frac{3}{4}}$

(j) $\dfrac{\frac{16}{5}}{-4}$

(k) $\dfrac{-25}{\frac{10}{3}}$

(l) $\dfrac{19}{\frac{-1}{19}}$

(m) $\dfrac{\frac{49}{4}}{-7}$

(n) $\dfrac{-9}{\frac{0}{3}}$

(o) $\dfrac{-36}{\frac{-18}{5}}$

(p) $\dfrac{\frac{-40}{3}}{10}$

(q) $\dfrac{-5}{\frac{2}{5}}$

(r) $\dfrac{0}{\frac{-4}{3}}$

(s) $\dfrac{\frac{21}{4}}{-7}$

(t) $\dfrac{-15}{\frac{15}{2}}$

21. ***Division of fractions and integers (positive and negative) using "÷" . Numerators could be positive or negative integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\left(-\frac{5}{4}\right) \div (-10)$

(b) $10 \div \left(-\frac{5}{4}\right)$

(c) $\left(\frac{-7}{9}\right) \div (-14)$

(d) $-10 \div \left(\frac{0}{4}\right)$

(e) $\left(\frac{-8}{9}\right) \div (10)$

(f) $10 \div \left(-\frac{8}{9}\right)$

(g) $\left(\frac{-15}{7}\right) \div (-15)$

(h) $-23 \div \left(\frac{0}{1}\right)$

(i) $\left(-\frac{12}{5}\right) \div (-8)$

(j) $25 \div \left(\frac{-5}{3}\right)$

(k) $\left(\frac{-22}{3}\right) \div (-11)$

(l) $0 \div \left(\frac{0}{4}\right)$

(m) $\left(-\frac{5}{9}\right) \div (-20)$

(n) $17 \div \left(-\frac{17}{2}\right)$

(o) $\left(\frac{-25}{14}\right) \div (-35)$

(p) $-1 \div \left(\frac{1}{4}\right)$

(q) $\left(\frac{-64}{4}\right) \div (-16)$

(r) $100 \div \left(-\frac{20}{3}\right)$

(s) $\left(\frac{-2}{13}\right) \div (-4)$

(t) $-32 \div \left(\frac{8}{5}\right)$

22. ***"Zero-add" category (addition of opposite numbers).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-15+15$

(b) $-38-(-38)$

(c) $-(-54)-54$

(d) $-17+17$

(e) $-51-(-51)$

(f) $-(-23)-23$

(g) $-12+12$

(h) $-91-(-91)$

(i) $-(-73)-73$

(j) $-19+19$

(k) $-68-(-68)$

(l) $-(-103)-103$

(m) $-89+89$

(n) $-235-(-235)$

(o) $-(-45)-45$

(p) $-88+88$

(q) $-234-(-234)$

(r) $-(-154)-154$

(s) $-67+67$

(t) $-99-(-99)$

23. ***"Zero-div" category (division equal to zero or undefined).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $0\div(-10)$

(b) $\frac{0}{-3}$

(c) $-6\div 0$

(d) $\frac{4}{0}$

(e) $\frac{0}{6}$

(f) $0 \div 7$

(g) $\frac{0}{-1}$

(h) $-9 \div 0$

(i) $\frac{14}{0}$

(j) $\frac{0}{62}$

(k) $0 \div (-102)$

(l) $\frac{0}{-315}$

(m) $-315 \div 0$

(n) $\frac{18}{0}$

(o) $\frac{0}{18}$

(p) $0 \div (-100)$

(q) $\frac{0}{-99}$

(r) $-66 \div 0$

(s) $\frac{51}{0}$

(t) $\frac{0}{79}$

24. ***"Ten" category (multiplication of decimals and integers by positive powers of ten) .***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) 1.2×100

(b) 2.1×10

(c) 12×100

(d) $1000 \times (-1.1)$

(e) -3.2×100

(f) 0.1×10

(g) $11 \times (-100)$

(h) 1000×0.1

(i) $1.5 \times (-100)$

(j) -8.1×10

(k) 5×100

(l) $100 \times (-5.5)$

(m) $-3.23 \times (-100)$

(n) -2.11×10

(o) $21 \times (-100)$

(p) $1000 \times (-1.11)$

(q) 0.2×100

(r) 2.01×10

(s) $16 \times (-10)$

(t) $-1000 \times (-0.01)$

25. ***"Ten" category (division of integers by positive powers of ten) .***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $7 \div (-100)$

(b) $-2 \div 10$

(c) $-6 \div (100)$

(d) $8 \div 10$

(e) $-12 \div (-100)$

(f) $-25 \div 10$

(g) $12 \div (-100)$

(h) $9 \div (-10)$

(i) $32 \div 100$

(j) $-40 \div 10$

(k) $70 \div (-100)$

(l) $65 \div 10$

(m) $-45 \div (-1000)$

(n) $1 \div (-10)$

(o) $1 \div (-100)$

(p) $-243 \div 10$

(q) $137 \div (-100)$

(r) $234 \div 1000$

(s) $127 \div (-100)$

(t) $-345 \div (-10)$

26. ***"Ten" category (division of decimals by positive powers of ten) .***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2.31 \div 10$

(b) $2.3 \div 100$

(c) $20.11 \div 10$

(d) $1.3 \div (-100)$

(e) $0.3 \div 10$

(f) $-1.1 \div 100$

(g) $0.7 \div 10$

(h) $12.5 \div 100$

(i) $5.1 \div (-10)$

(j) $9.3 \div 100$

(k) $13.1 \div 1000$

(l) $7.3 \div (-100)$

(m) $-6.01 \div 10$

(n) $-8.1 \div 100$

(o) $2.1 \div 1000$

(p) $-3.3 \div (-100)$

(q) $0.2 \div 10$

(r) $0.2 \div (-100)$

(s) $0.02 \div (-10)$

(t) $2.34 \div (-100)$

27. ***Order of operation involving only two operations and integers: multiplications,divisions (only integers as an answer).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $16 \div (-4) \div 4$

(b) $4 \div 2 \times (-2)$

(c) $8 \div (-2) \div (-2)$

(d) $25 \div (-5) \div 5$

(e) $8 \div 4 \times (-4)$

(f) $-9 \div (-3) \div (-3)$

(g) $36 \div (-3) \div 3$

(h) $36 \div 9 \times (-2)$

(i) $12 \div (-2) \div (-3)$

(j) $4 \times (-4) \div 4$

(k) $10 \div 2 \times (-5)$

(l) $100 \div (-10) \div (-10)$

(m) $5 \times (-4) \div (-4)$

(n) $22 \div 2 \times (-2)$

(o) $20 \div (-2) \div (-2)$

(p) $9 \times 4 \div (-2)$

(q) $15 \div 5 \times (-3)$

(r) $49 \div (-7) \div (-1)$

(s) $2 \times (-4) \div 2$

(t) $21 \div 7 \times 3$

28. ***Order of operation involving only two operations and integers: additions or subtractions, multiplications (only integers as an answer).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $5 - 2 \times (-2)$

(b) $-1 - 1 \times (-1)$

(c) $2(-2) + 3$

(d) $-9 + 2 \times (-2)$

(e) $-3 - 3 \times 3$

(f) $10 + 2 \times (-5)$

(g) $7 - 3 \times (-2)$

(h) $-3 - 4 \times (-1)$

(i) $-2 \times 4 - 1$

(j) $11 - 4 \times 0$

(k) $-7 - 0 \times (-2)$

(l) $11 + 2 \times (-11)$

(m) $1 - 3 \times (-2)$

(n) $0 - 3 \times (-1)$

(o) $-5 + 5 \times (-2)$

(p) $-7 \times (-2) + 7$

(q) $9 - 1 \times (-8)$

(r) $1 + 2 \times (-1)$

(s) $14 - 2 \times 0$

(t) $-1 - 1 \times (-10)$

(u) $-3 \times 2 + 4$

(v) $7(-5) - 8$

29. ***Order of operation involving only two operations and integers: additions or subtractions, divisions including fraction notation (only integers as an answer).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\dfrac{3-6}{3}$

(b) $-2 - 2 \div 2$

(c) $\dfrac{6+2}{-2}$

(d) $-8 + 8 \div 2$

(e) $\dfrac{5-15}{5}$

(f) $-9 - 9 \div 3$

(g) $\dfrac{-2-4}{2}$

(h) $4 + \dfrac{-36}{6}$

(i) $\dfrac{-6+6}{6}$

(j) $\dfrac{-6}{-3}-2$

(k) $\dfrac{6-18}{-6}$

(l) $7-2\div(-2)$

(m) $\dfrac{-7-7}{7}$

(n) $-10+15\div(-5)$

(o) $\dfrac{-6}{-1-2}$

(p) $-4\div(-2-2)$

(q) $\dfrac{3-6}{-3+3}$

(r) $8\div(-2+2)$

(s) $\dfrac{5}{-1-4}$

(t) $\dfrac{5}{-5+5}$

30. ***Order of operation involving more than two operations with integers :additions ,subtractions, multiplications divisions (only integers as an answer).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $3+\dfrac{14\times 4}{8}$

(b) $3(-1)+4\div 2$

(c) $\dfrac{4-5}{6-5}$

(d) $4\div(-1+3-2)$

(e) $(-6-1)(2-9)$

(f) $-2+\dfrac{22\times 2}{-11}$

(g) $(-2)(-1)+9\div(-3)$

(h) $\dfrac{-4-4}{2-4}$

(i) $(-3-3+6)\div 3$

(j) $(-6-1)(2-9)$

(k) $\dfrac{42\times 4}{-7}-1$

(l) $5(-2)-4\div(-2)$

(m) $\dfrac{8-2}{0-2}$

(n) $4 \times (-1+3-2)$

(o) $-6-2(2-9)$

(p) $-5-\dfrac{16\times 4}{32}$

(q) $4(-1)+4\div(-4)$

(r) $\dfrac{-6-7}{6-7}$

(s) $6\div(-6+3\times 2)$

(t) $\dfrac{(-6-1)(2-9)}{9-2}$

31. ***Number matching. (Equivalent fractions, mixed numbers as fractions, minus sign in fractions, fractions or decimals as division, integers as fractions, decimals as fractions).***

Fill in the blank between the numbers using either '=' or '$\neq$' to make a true statement.

(a) $\dfrac{-1}{5}$ $\qquad$ $\dfrac{1}{-5}$

(b) $1\div(-5)$ $\qquad$ $\frac{-1}{5}$

(c) $3\frac{1}{2}$ $\qquad$ $\dfrac{3}{2}$

(d) 0.5 $\qquad$ $\dfrac{1}{2}$

(e) $\dfrac{-2}{-3}$ $\qquad$ $-\dfrac{2}{3}$

(f) $\dfrac{1}{5}$ $\qquad$ $-\left(\dfrac{1}{-5}\right)$

(g) $-4\div(-3)$ $\qquad$ $\frac{4}{3}$

(h) $1\frac{5}{7}$ $\qquad$ $1+\dfrac{5}{7}$

(i) $-0.1\div 10$ $\qquad$ -1

(j) $\dfrac{-2}{-4}$ $\qquad$ $\dfrac{1}{2}$

(k) $-\dfrac{7}{4}$ $\qquad$ $\dfrac{7}{-4}$

(l) $1\div(-2)$ $\qquad$ -2

(m) $1\frac{5}{7}$ $\qquad$ $1\times\dfrac{5}{7}$

(n) $\dfrac{426}{426}$ $\qquad$ $\dfrac{563}{563}$

(o) $\dfrac{-2}{-7}$ $\quad -\left(\dfrac{2}{7}\right)$

(p) $\dfrac{-10}{10}$ $\quad \dfrac{5}{-5}$

(q) $\dfrac{-4560}{370}$ $\quad \dfrac{456}{-37}$

(r) $3\frac{1}{2}$ $\quad \dfrac{7}{2}$

(s) $\dfrac{5}{100}$ $\quad 0.5$

(t) $-\left(\dfrac{-2}{-3}\right)$ $\quad -\dfrac{2}{3}$

32. ***Subtraction of decimals and integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $0.89 - 1$

(b) $0.78 - 1$

(c) $-3.7 - 0.4$

(d) $-(-4.32) - 5.1$

(e) $0.22 - 2$

(f) $0.98 - 2$

(g) $-1.8 - 0.3$

(h) $3.42 - 4.1$

(i) $0.11 - 1.0$

(j) $-0.67 + 1$

(k) $-2.3 - 0.3$

(l) $2.32 - 3.2$

(m) $-(-0.97) - 1$

(n) $2.88 - 3$

(o) $-0.7 - 0.14$

(p) $-0.41 - (-1.1)$

(q) $0.19 - 1$

(r) $0.65 - 1.000$

(s) $-4.70 - 0.7$

(t) $6.21 - 6.3$

33. ***Addition of decimals and integers.*** Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-2.5 + 2.43$

(b) $-3.2 + 3.12$

(c) $-2 + 0.3$

(d) $-0.2 + (-0.3)$

(e) $-3.5 + 3.47$

(f) $-4.3 + 4.13$

(g) $-1 + 0.14$

(h) $-0.3 + (-0.5)$

(i) $-4.6 + 4.26$

(j) $-7.20 + 0.2$

(k) $-3 + 0.31$

(l) $-1.2 + (-1.12)$

(m) $-4.1 + 4.01$

(n) $-3.2 + 4.12$

(o) $-5 + 0.7$

(p) $-2.3 + (-3.2)$

(q) $-1.5 + 2.05$

(r) $-5.1 + 5.13$

(s) $-10 + 0.01$

(t) $-4.4 + (-0.7)$

34. ***Multiplication of decimals and integers.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $35 \times (-0.001)$

(b) -3×0.11

(c) $-2 \times (-0.9)$

(d) -21×0.01

(e) $4 \times (-0.11)$

(f) $-5 \times (-0.7)$

(g) $(-0.001) \times 11$

(h) $(-0.22) \times 4$

(i) $(-0.7) \times (-4)$

(j) 29×0.001

(k) 5×0.22

(l) $-3 \times (-0.111)$

(m) $35 \times (-0.01)$

(n) -3×0.111

(o) $-2 \times (-0.09)$

(p) $25 \times (-0.001)$

(q) -31×0.01

(r) $-8 \times (-0.07)$

(s) $15 \times (-0.03)$

(t) -2×0.22

35. ***Multiplication of decimals.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) 0.01×2.3

(b) $0.09 \times (-0.3)$

(c) -0.02×1.3

(d) 0.11×0.4

(e) 0.01×1.1

(f) $-0.9 \times (-0.02)$

(g) 0.03×1.2

(h) $0.111 \times (-0.5)$

(i) 1.01×0.3

(j) 0.08×0.5

(k) 0.04×1.1

(l) 0.22×0.2

(m) 0.01×3.4

(n) 0.07×0.03

(o) 0.3×1.11

(p) 1.001×0.2

(q) -0.05×2.1

(r) $0.06 \times (-0.6)$

(s) 0.02×3.3

(t) -0.11×0.2

36. ***Division of decimals and integers using fraction notation.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\dfrac{-0.32}{0.2}$

(b) $\dfrac{0.33}{-0.3}$

(c) $\dfrac{-6.22}{0.2}$

(d) $\dfrac{-1.23}{-0.3}$

(e) $\dfrac{-9}{0.2}$

(f) $\dfrac{33}{-0.03}$

(g) $\dfrac{-5.5}{0.5}$

(h) $\dfrac{-35}{-0.5}$

(i) $\dfrac{-0.25}{0.5}$

(j) $\dfrac{5.55}{-0.5}$

(k) $\dfrac{-0.36}{0.6}$

(l) $\dfrac{0.049}{-0.7}$

(m) $\dfrac{-4.44}{0.2}$

(n) $\dfrac{1.2}{-20}$

(o) $\dfrac{-1.2}{30}$

(p) $\dfrac{0.33}{-0.3}$

(q) $\dfrac{-8.2}{0.02}$

(r) $\dfrac{0.15}{-1.5}$

(s) $\dfrac{-0.27}{0.29}$

(t) $\dfrac{-0.33}{-0.03}$

37. ***Division of decimals and integers using "÷".***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-0.25 \div (-0.005)$

(b) $0.33 \div (-0.011)$

(c) $25 \div (-0.005)$

(d) $-0.033 \div (-0.11)$

(e) $-3.6 \div (-0.006)$

(f) $0.444 \div (-0.011)$

(g) $-0.49 \div (-0.007)$

(h) $0.044 \div (-0.022)$

(i) $0.30 \div (-0.015)$

(j) $0.33 \div (-0.009)$

(k) $-0.75 \div (-0.005)$

(l) $-0.3333 \div 0.11$

(m) $-0.72 \div (-0.008)$

(n) $0.99 \div (-0.011)$

(o) $-6.4 \div (-0.008)$

(p) $8.8 \div (-0.022)$

(q) $-1.25 \div (-0.005)$

(r) $0.64 \div (-0.008)$

(s) $-3.25 \div (-0.05)$

(t) $0.11 \div (-0.011)$

38. ***Exponential notation (decimals).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-(-0.1)^2$

(b) -0.1^2

(c) $(-0.1)^3$

(d) 0.2^3

(e) $-(-0.3)^2$

(f) -0.3^2

(g) $-(-1.1)^2$

(h) -1.1^2

(i) $-(-0.11)^2$

(j) -0.11^2

(k) $-(-0.01)^3$

(l) -0.01^3

(m) $(-2.2)^2$

(n) -2.2^2

(o) $-(-0.4)^2$

(p) -0.4^2

(q) $-(-0.5)^2$

(r) -0.5^2

(s) $(-0.6)^2$

(t) -0.6^2

39. ***Exponential notation (integers).*** Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $-(-2)^4$

(b) -2^4

(c) $(-1)^{14}$

(d) $(-1)^{25}$

(e) $(-100)^3$

(f) $-(-3)^4$

(g) -3^4

(h) $(-1)^{38}$

(i) $(-1)^{201}$

(j) $-(-100)^5$

(k) $-(-4)^3$

(l) -4^3

(m) $-(-1)^{42}$

(n) $(-1)^{27}$

(o) $-(-100)^2$

(p) $-(-5)^2$

(q) -5^2

(r) $(-1)^{202}$

(s) $(-1)^{37}$

(t) $(-10)^4$

40. ***Exponential notation (fractions).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $\left(-\frac{3}{2}\right)^3$

(b) $\left(-\frac{2}{3}\right)^3$

(c) $\left(-\frac{1}{2}\right)^4$

(d) $\left(-\frac{1}{2}\right)^3$

(e) $-\left(-\frac{2}{3}\right)^4$

(f) $-\left(-\frac{1}{3}\right)^3$

(g) $\left(-\frac{1}{3}\right)^4$

(h) $-\left(-\frac{2}{5}\right)^3$

(i) $\left(\frac{-1}{5}\right)^3$

(j) $\left(\frac{-1}{3}\right)^4$

(k) $-\left(\frac{-1}{4}\right)^2$

(l) $\left(\frac{-1}{4}\right)^3$

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

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

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

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

(q) $-\left(-\frac{1}{2}\right)^6$

(r) $\left(-\frac{1}{2}\right)^5$

(s) $-\left(\frac{-2}{5}\right)^2$

(t) $\left(\frac{-2}{5}\right)^3$

41. ***Addition using mixed numbers (fractions or integers could be present).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $3\frac{2}{3} + 2\frac{1}{5}$

(b) $-1\frac{4}{5} + 2\frac{2}{3}$

(c) $2\frac{3}{5} + \frac{3}{10}$

(d) $3\frac{1}{3} + 1\frac{2}{7}$

(e) $-1+2\frac{2}{5}$

(f) $\frac{15}{14}+1\frac{4}{7}$

(g) $5\frac{4}{5}+1\frac{1}{2}$

(h) $-3\frac{1}{2}+2\frac{5}{6}$

(i) $-4\frac{3}{8}+2$

(j) $1\frac{1}{4}+4\frac{1}{5}$

(k) $-1+2\frac{7}{8}$

(l) $4\frac{1}{4}+\frac{9}{8}$

(m) $6\frac{1}{3}+2\frac{1}{6}$

(n) $-1\frac{4}{5}+3\frac{2}{3}$

(o) $\frac{17}{5}+5\frac{3}{5}$

(p) $7\frac{1}{7}+1\frac{1}{2}$

(q) $-5\frac{4}{5}+2$

(r) $-3\frac{3}{5}+\frac{5}{3}$

(s) $-2\frac{3}{4}+1\frac{1}{3}$

(t) $-\frac{7}{3}+1\frac{3}{5}$

42. ***Subtraction using mixed numbers(fractions or integers could be present).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2\frac{1}{3}-1\frac{5}{6}$

(b) $3\frac{1}{5}-2\frac{7}{10}$

(c) $-2\frac{1}{3}-1\frac{5}{6}$

(d) $2\frac{4}{5}-10$

(e) $4\frac{2}{5}-7\frac{2}{3}$

(f) $3\frac{1}{3} - 3$

(g) $-2\frac{2}{3} - 5\frac{1}{2}$

(h) $-2\frac{1}{2} - 2$

(i) $-2\frac{4}{7} - 1\frac{1}{14}$

(j) $1\frac{4}{5} - 2\frac{1}{2}$

(k) $6\frac{1}{3} - \frac{5}{6}$

(l) $7 - 4\frac{3}{4}$

(m) $-2\frac{3}{7} - 3\frac{1}{4}$

(n) $1\frac{2}{3} - 3\frac{14}{15}$

(o) $-9\frac{1}{3} - \frac{2}{3}$

(p) $-3 - 2\frac{2}{3}$

(q) $-2\frac{3}{5} - 1\frac{2}{3}$

(r) $5\frac{1}{5} - \frac{7}{10}$

(s) $\frac{10}{12} - 1\frac{5}{6}$

(t) $5\frac{4}{5} - 6$

43. ***Multiplication using mixed numbers (fractions or integers could be present).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2\frac{2}{3} \times \left(-1\frac{1}{2}\right)$

(b) $2\frac{1}{2} \times 3\frac{1}{3}$

(c) $3\frac{4}{5} \times \frac{1}{4}$

(d) $3\frac{1}{3} \times 7$

(e) $-2\frac{2}{3} \times \left(-1\frac{4}{5}\right)$

(f) $3\frac{1}{4} \times 1\frac{7}{13}$

(g) $5\frac{2}{5} \times \left(-\frac{1}{3}\right)$

(h) $3\frac{1}{7} \times 14$

(i) $4\frac{2}{3} \times 1\frac{2}{27}$

(j) $1\frac{3}{17} \times \left(-2\frac{1}{5}\right)$

(k) $\frac{1}{10} \times 2\frac{1}{2}$

(l) $-6 \times 3\frac{1}{12}$

(m) $10\frac{3}{10} \times 1\frac{2}{103}$

(n) $7\frac{4}{7} \times \left(-1\frac{1}{53}\right)$

(o) $\frac{1}{100} \times 2\frac{1}{2}$

(p) $-4 \times \left(-2\frac{1}{16}\right)$

(q) $2\frac{1}{5} \times \left(-1\frac{3}{22}\right)$

(r) $8\frac{1}{8} \times 3\frac{1}{5}$

(s) $3\frac{4}{5} \times \frac{5}{38}$

(t) $9\frac{1}{9} \times (-3)$

44. ***Division using mixed numbers (fractions or integers could be present).***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2\frac{2}{3} \div 3\frac{1}{3}$

(b) $3\frac{1}{5} \div \left(-1\frac{1}{2}\right)$

(c) $2\frac{2}{9} \div \frac{4}{3}$

(d) $3\frac{2}{3} \div 3$

(e) $\frac{1\frac{3}{4}}{-2\frac{1}{2}}$

(f) $3\frac{2}{4} \div 1\frac{3}{28}$

(g) $\frac{2\frac{3}{4}}{\frac{9}{2}}$

(h) $5 \div 3\frac{1}{3}$

(i) $1\frac{3}{10} \div 2\frac{4}{5}$

(j) $1\frac{7}{9} \div \left(-4\frac{2}{3}\right)$

(k) $\frac{9}{10} \div 1\frac{1}{5}$

(l) $10\frac{2}{5} \div (-4)$

(m) $\frac{2\frac{1}{6}}{-1\frac{4}{9}}$

(n) $6\frac{1}{4} \div 1\frac{3}{2}$

(o) $\frac{7\frac{3}{7}}{-\frac{26}{3}}$

(p) $-10 \div 3\frac{1}{3}$

(q) $9\frac{1}{3} \div 3\frac{1}{9}$

(r) $10\frac{1}{10} \div \left(-1\frac{1}{5}\right)$

(s) $4\frac{1}{3} \div \left(-\frac{13}{3}\right)$

(t) $8\frac{1}{8} \div 65$

45. ***Order of operations with the presence of exponentiation.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2 - 2(2 - 3)^9$

(b) $-2^3 + 0 \div 2$

(c) $3 + 3(4 - 5)^7$

(d) $(-10)^3 \div 10^2 \times 10$

(e) $4 - (-3 + 2)^{18}$

(f) $-2^3 \times (-3)^2$

(g) $1000 - 2(3+7)^3$

(h) $8 \div 3(-2+4)^2$

(i) $2 - 2(2-3)^9$

(j) $-1^4 - 3 \times (-6)$

(k) $5 + 2(3-4)^{73}$

(l) $-(-10)^2 \div 10^1 \times 10$

(m) $5 - 5(-9+8)^5$

(n) $-4^2 \times (-2)^4$

(o) $-(2-7)^2 - 2 \times 5$

(p) $-10^2 \div 2 \times 10$

(q) $6 + 6(5-6)^9$

(r) $-2^2 + 0 \div (-2)$

(s) $0^3 - 3(4-6)^3$

(t) $8 \div 4 \times (-5+5)^4$

46. ***Order of operations with the presence of grouping symbols at least twice.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $(3+2)(-1-1)$

(b) $(3-4) \div (-2+2)$

(c) $[2+2(-2)] \div (3-5)$

(d) $(-6-1)(2-9)$

(e) $[-3+(-7)]^3$

(f) $-4-(-7)+(-2)$

(g) $-2-(-1)(-3)$

(h) $(5-2)^2(-2-1)$

(i) $(6-8) \div (-3+2)^3$

(j) $[3+3(-3)] \div (7-9)^1$

(k) $(-4-8) \div (1-3)^2$

(l) $[-2(-1)]^3$

(m) $-4(-7)+(-2)$

(n) $-2-(-1)(-3)$

(o) $(-3+3)\div(-2+3)$

(p) $2^{10}\div[4+2(-2)]$

(q) $(-6-1)-(2-9)$

(r) $2[-3+(-4)^2]$

(s) $2-[-3+(-4)^2]$

(t) $2-[-3+(-4)]^2$

47. ***Order of operations with the presence of fractions.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $2-\left(-\frac{1}{3}+\frac{1}{2}\right)^2$

(b) $2+3\left(-\frac{1}{3}+\frac{1}{2}\right)$

(c) $\frac{3}{5}\div\left(\frac{1}{2}-\frac{3}{5}\right)$

(d) $\frac{-2}{5}\times 4-\frac{2}{3}$

(e) $\frac{8}{7}-\frac{1}{4}\div\frac{3}{8}$

(f) $-\frac{5}{6}+\frac{3}{4}\div 2$

(g) $\left(-\frac{2}{7}\times\frac{14}{5}\right)^2$

(h) $\frac{3}{20}-\frac{4}{17}\times\frac{17}{5}$

(i) $-2\div\left(-\frac{2}{7}-\left(-\frac{2}{7}\right)\right)$

(j) $\left(-\frac{4}{5}\right)\left(-\frac{4}{5}\right)-\frac{4}{5}-\frac{4}{5}$

(k) $\left(-\frac{3}{5}+\frac{1}{10}\right)\div\frac{5}{2}$

(l) $\frac{\frac{3}{4}-\frac{1}{4}+\frac{5}{4}}{-\frac{3}{14}}$

(m) $\frac{8}{7}-\frac{1}{4}\div\frac{3}{8}$

(n) $-\frac{5}{6} \div \frac{3}{4} \div 2$

(o) $-\frac{8}{3}\left(\frac{1}{2}\right)^3\left(-\frac{3}{4}\right)$

(p) $\left(\frac{-3}{5} - \frac{-3}{20}\right) \times \frac{4}{3}$

(q) $\left(\frac{-5}{4}\right)^2 + \left(\frac{2}{3} - \frac{7}{4}\right)$

(r) $-4\left(-\frac{1}{5}\right) - \left(\frac{1}{4}\right)\left(-\frac{1}{2}\right)$

(s) $\frac{\frac{1}{5} \div 3}{-\frac{7}{20}}$

(t) $-\left(\frac{-4}{3} + \frac{5}{6}\right) \div 2$

48. ***Order of operations involving decimals or fractions in the computation.***

Compute if possible or write 'undefined'.Simplify as much as possible.

(a) $9 - 5 \div 10 \times 3$

(b) $-2 + 2 \div 4 \div 4$

(c) $7 \div 3 \times 2 - 1$

(d) $-2(-2 \div 3 \div 2)$

(e) $-(-6 \div 10 \times 2)^2$

(f) $-2(4 \div 4 \div 4)$

(g) $-3(7 - 3 \div 2)$

(h) $-1 + 1 \div 4 \times 5$

(i) $6 \times 3 \div 36 - 36$

(j) $3(-1 \div 2 \div 2)^3$

(k) $-1(-10 \div 10 \div 2)^2$

(l) $3 - (2 \times 4 \div 16)$

(m) $-1 - 4 \div 10 \times 3$

(n) $-4 \div 2 + 2 \times 0 \div 4$

(o) $0 \div 3 - 5 \div 10$

(p) $-7(-3 \div 14 \div 3)$

(q) $(-9 \div 9 \div 3)^3$

(r) $-10(10 \div 10 \div 2)^2$

(s) $\dfrac{2-7-3}{1+3\times 5}$

(t) $\dfrac{-3-3\div 2}{10\div 5}$

49. ***Computation matching.***

Fill in the blank between the numbers using either '=' or '$\neq$' to make a true statement.

(a) $-5+67-39 \qquad 67-39-5$

(b) $35(-9)+8 \qquad 35-9+8$

(c) $4^3 \qquad 4+4+4$

(d) $\dfrac{12}{25}\times\dfrac{12}{25}\times\dfrac{12}{25} \qquad \dfrac{12^3}{25^3}$

(e) $\dfrac{12}{25}\times\dfrac{12}{25}\times\dfrac{12}{25} \qquad \dfrac{12^3}{25}$

(f) $7-91+44 \qquad 91-7+44$

(g) $(-45)(-11)+11 \qquad (-45)(-11+11)$

(h) $-(-6)^8 \qquad 6^8$

(i) $\dfrac{13\times 57}{13\times 49} \qquad \dfrac{57}{49}$

(j) $\dfrac{12}{25}+\dfrac{12}{25}+\dfrac{12}{25} \qquad \left(\dfrac{12}{25}\right)^3$

(k) $-18-18-18 \qquad -18(-18)(-18)$

(l) $-18-18-18 \qquad -18+(-18)+(-18)$

(m) $-18-18-18 \qquad (-18)^3$

(n) $-18(-18)(-18) \qquad (-18)^3$

(o) $\dfrac{25}{12}\times\dfrac{25}{12}\times\dfrac{25}{12} \qquad \dfrac{25\times 25\times 25}{12}$

(p) $-5(67-39) \qquad -5+67-39$

(q) $35(-35)-223 \qquad -35^2-223$

(r) $35(-35)-223 \qquad (-35)^2-223$

(s) $\dfrac{13+57}{13+49} \qquad \dfrac{57}{49}$

(t) $12\times\dfrac{12}{25}\times 12 \qquad \dfrac{12^3}{25}$

50. ***Percents.***

(a) What is 8% of 42?

(b) What is 3% of 32?

(c) What is 110% of 25?

(d) What is 0.2% of 25?

(e) What is 7% of 52?

(f) What is 15% of 30?

(g) What is 120% of 50?

(h) What is 0.1% of 22?

(i) What is 12% of 21?

(j) What is 5% of 18?

(k) What is 130% of 20?

(l) What is 0.5% of 35?

(m) What is 70% of 45?

(n) What is 60% of 60?

(o) What is 102% of 40?

(p) What is 0.6% of 36?

(q) What is 65% of 48?

(r) What is 2% of 105?

(s) What is 105% of 50?

(t) What is 0.4% of 65?