Grade 6 to 7

Review Packet

Answers

Summer Use

Add/Subtract Fractions and Mixed Numbers

1. $\frac{4}{3}+\frac{5}{3} = \frac{9}{3} = \boxed{3}$

2. $\frac{2}{5}+\frac{11}{7} = \frac{2}{5}\frac{(7)}{(7)} + \frac{11}{7}\frac{(5)}{(5)} = \frac{14}{35}+\frac{55}{35} = \frac{69}{35}$

$= \frac{35}{35}+\frac{34}{35} = \boxed{1\frac{34}{35}}$

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

$= \frac{8}{6}-\frac{3}{6} = \boxed{\frac{5}{6}}$

4. $\frac{1}{3}+\frac{3}{9} = \frac{1}{3}\frac{(3)}{(3)} + \frac{3}{9} = \frac{3}{9}+\frac{3}{9}$

$= \frac{6}{9} = \boxed{\frac{2}{3}}$

5. $\boxed{4\frac{1}{2}}-\frac{1}{2} = \underbrace{4+\frac{1}{2}-\frac{1}{2}}$

$= \boxed{4}$

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

$= 1+2+\frac{3}{5}+\frac{3}{5}$

$= 3+\frac{6}{5} = 3+1\frac{1}{5} = \boxed{4\frac{1}{5}}$

7. $4\frac{7}{8}-3\frac{5}{7} = \left(4+\frac{7}{8}\right)-\left(3+\frac{5}{7}\right)$

$= 4+\frac{7}{8}-3-\frac{5}{7}$

$= 4-3+\frac{7}{8}-\frac{5}{7} = 1+\frac{7(7)}{8(7)}-\frac{5(8)}{7(8)}$

$= 1+\frac{49}{56}-\frac{40}{56} = 1+\frac{9}{56}$

$= \boxed{1\frac{9}{56}}$

8. $4\frac{5}{7}-3\frac{1}{2} = \left(4+\frac{5}{7}\right)-\left(3+\frac{1}{2}\right)$

$= 4+\frac{5}{7}-3-\frac{1}{2} = 4-3+\frac{5}{7}-\frac{1}{2}$

9. $2\left(\frac{1}{6}\right)-\left(\frac{1}{3}\right)$

because $\frac{1}{6}$ is smaller than $\frac{1}{3}$ I am going to do this problem a little different

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

$= 2+\frac{1}{6}-\frac{2}{6}$ can't do this

$= 1+1+\frac{1}{6}-\frac{2}{6}$

$= 1+\frac{6}{6}+\frac{1}{6}-\frac{2}{6}$

$= 1+\left(\frac{7}{6}-\frac{2}{6}\right)$

$= 1+\frac{5}{6} = \boxed{1\frac{5}{6}}$

10. $3\frac{1}{4}-1\frac{2}{3} = 3+\frac{1}{4}-1-\frac{2}{3} = 3+\frac{1}{4}\frac{(3)}{(3)}-1-\frac{2}{3}\frac{(4)}{(4)}$

$= 3+\frac{3}{12}-1-\frac{8}{12} = 2+1+\frac{3}{12}-1-\frac{8}{12}$

$= 2+\frac{12}{12}+\frac{3}{12}-1-\frac{8}{12} = 2-1+\left(\frac{12}{12}+\frac{3}{12}-\frac{8}{12}\right)$

$= 1+\frac{7}{12} = \boxed{1\frac{7}{12}}$

Multiplying/Dividing Fractions

1. $\frac{8}{7} \times \frac{7}{10} = \frac{2(4)}{7} \times \frac{7}{2(5)} = \frac{4 \times 1}{1 \times 5} = \frac{4}{5}$

2. $\frac{2}{3} \times \frac{5}{4} = \frac{2}{3} \times \frac{5}{4_2} = \frac{1 \times 5}{3 \times 2} = \frac{5}{6}$

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

Convert to improper fractions → $2\frac{2}{3} = \frac{(3 \times 2) + 2}{3}$ (same denominator)

4. $2\frac{2}{3} \times 4\frac{1}{10} = \frac{(3 \times 2) + 2}{3} \times \frac{(10 \times 4) + 1}{10}$

$= \frac{6+2}{3} \times \frac{40+1}{10} = \frac{8}{3} \times \frac{41}{10_5} = \frac{4 \times 41}{3 \times 5} = \frac{164}{15}$ or $10\frac{14}{15}$

5. $2\frac{1}{5} \times 1\frac{3}{4} = \frac{(5 \times 2) + 1}{5} \times \frac{(4 \times 1) + 3}{4}$

$= \frac{10+1}{5} \times \frac{4+3}{4} = \frac{11}{5} \times \frac{7}{4} = \frac{77}{20}$ or $3\frac{17}{20}$

6. $\frac{1}{5} \div \frac{7}{4} = \frac{1}{5} \div \frac{7}{4} = \frac{1}{5} \times \frac{4}{7} = \frac{1 \times 4}{5 \times 7} = \frac{4}{35}$

when the sign changes → then flip (reciprocal)

7. $\frac{1}{2} \div \frac{5}{4} = \frac{1}{2} \times \frac{4}{5} = \frac{1}{2_1} \times \frac{4^2}{5}$

$= \frac{1 \times 2}{1 \times 5} = \frac{2}{5}$

8. $\frac{1}{2} \div \frac{8}{7} = \frac{1}{2} \times \frac{7}{8} = \frac{1 \times 7}{2 \times 8} = \frac{7}{16}$

9. $\frac{1}{9} \div 1\frac{1}{3} = \frac{1}{9} \div \frac{(3 \times 1) + 1}{3}$

$= \frac{1}{9} \div \frac{3+1}{3} = \frac{1}{9} \div \frac{4}{3}$

$= \frac{1}{9} \times \frac{3}{4} = \frac{1}{9_3} \times \frac{3^1}{4}$

$= \frac{1 \times 1}{3 \times 4} = \frac{1}{12}$

10. $1\frac{6}{7} \div 5\frac{3}{4} = \frac{(7 \times 1) + 6}{7} \div \frac{(4 \times 5) + 3}{4}$

$= \frac{7+6}{7} \div \frac{20+3}{4} = \frac{13}{7} \div \frac{23}{4}$

$= \frac{13}{7} \times \frac{4}{23} = \frac{52}{161}$

Fraction Word Problems

1. A city planner has an $\frac{8}{9}$-acre plot of land to develop for the city. She will use the land to make separate sections that each have an area of $\frac{1}{4}$ acre for gardens. What is the greatest number of $\frac{1}{4}$-acre sections that can be made from the $\frac{8}{9}$-acre plot of land? Taking 8/9 of an acre and dividing it into 1/4 acre sections

$\frac{8}{9} \div \frac{1}{4} = \frac{8}{9} \times \frac{4}{1} = \frac{32}{9} = 3\frac{5}{9}$ So only 3 full $\frac{1}{4}$ acre sections

2. A number cube has side lengths of $1\frac{1}{4}$ inches. What is the volume, in cubic inches, of the number cube?

Volume of a cube = side x side x side $= 1\frac{1}{4} \times 1\frac{1}{4} \times 1\frac{1}{4} = \frac{5}{4} \times \frac{5}{4} \times \frac{5}{4}$

(All sides are the same length)

$= \frac{5 \times 5 \times 5}{4 \times 4 \times 4} = \frac{125}{64}$ or $1\frac{61}{64}$ in^3

3. Andrea buys $\frac{1}{4}$ kilogram of rice. This amount is $\frac{1}{6}$ the amount of rice she has at home. How many kilograms of rice does Andrea have at home?

$\frac{1}{4} \div \frac{1}{6} = \frac{1}{4} \times \frac{6}{1} = \frac{6}{4} = \frac{3}{2} = 1\frac{1}{2}$ kilograms of rice

4. Bruce's uncle is serving hamburgers and lemonade at a picnic. He will use $10\frac{2}{3}$ pounds of ground beef to make the hamburgers. Bruce's uncle grills each hamburger for $9\frac{1}{2}$ minutes. He grills each side of a hamburger for the same amount of time. Bruce's uncle has $13\frac{3}{4}$ liters of lemonade. He will pour all the lemonade into glasses so that each glass has $\frac{1}{4}$ liter of lemonade in it. Bruce's uncle writes the equation $13\frac{3}{4}g = \frac{1}{4}$ to calculate the number of glasses (g) needed.

A. What is the greatest number of $\frac{1}{3}$-pound hamburgers Bruce's uncle can make with the ground beef?

$10\frac{2}{3} \div \frac{1}{3} = \frac{32}{3} \times \frac{3}{1} =$ 32 hamburgers

B. How many minutes does Bruce's uncle grill each side of a hamburger? 2 sides of a hamburger

$9\frac{1}{2} \div 2 = 9\frac{1}{2} \div \frac{2}{1} = \frac{19}{2} \times \frac{1}{2} = \frac{19}{4} = 4\frac{3}{4}$ minutes

C. Explain the error Bruce's uncle made. As part of your explanation, calculate the number of glasses needed.

Bruce's uncle should have used $\frac{1}{4}(g) = 13\frac{3}{4}$. He has 13 3/4 liters of lemonade. He would need to divide the total number by 1/4 liter to get the total number of glasses.

$\frac{1}{4}g = 13\frac{3}{4}$

$\div \frac{1}{4} \quad \div \frac{1}{4}$

$g = 13\frac{3}{4} \div \frac{1}{4}$

$= \frac{55}{4} \div \frac{1}{4} = \frac{55}{4} \times \frac{4}{1} = \frac{55}{4} \times \frac{4}{1} = \frac{55}{1}$

= 55 glasses.

Adding/Subtracting decimals

1. 3.6 + 0.43

$$\begin{array}{r} 3.6 \\ -\ 0.43 \end{array} \rightarrow \begin{array}{r} 3.60 \\ -\ 0.43 \end{array}$$

$$\rightarrow \begin{array}{r} {}^{5}\cancel{3}.{}^{10}\cancel{6}0 \\ -\ 0.43 \\ \hline 3.17 \end{array}$$

2. 7.13 + 3.6

$$\begin{array}{r} 7.13 \\ +\ 3.6 \end{array} \rightarrow \begin{array}{r} 7.13 \\ +\ 3.60 \\ \hline 10.73 \end{array}$$

3. 10.9 − 6.1

$$\begin{array}{r} 10.9 \\ -\ 6.1 \\ \hline 4.8 \end{array}$$

4. 8.1 − 6.92

$$\begin{array}{r} 8.1 \\ -\ 6.92 \end{array} \rightarrow \begin{array}{r} {}^{0}8.{}^{10}1\cancel{0} \\ -\ 6.92 \\ \hline 8 \end{array} \rightarrow \begin{array}{r} {}^{7}\cancel{8}.{}^{10}{}^{10}\cancel{1}\cancel{0} \\ -\ 6.92 \\ \hline 1.18 \end{array}$$

5. 19.432 − 17.9

$$\begin{array}{r} {}^{8}\cancel{1}{}^{14}\cancel{9}.\cancel{4}32 \\ -\ 17.900 \\ \hline 1.532 \end{array}$$

6. 17.17 − 1.81

$$\begin{array}{r} {}^{6}\cancel{1}{}^{11}7.17 \\ -\ 1.81 \\ \hline 15.36 \end{array}$$

7. 8.5 − 0.96

$$\begin{array}{r} 8.5 \\ -\ 0.96 \end{array} \rightarrow \begin{array}{r} {}^{4}8.{}^{10}5\cancel{0} \\ -\ 0.96 \\ \hline 4 \end{array} \rightarrow \begin{array}{r} {}^{7}{}^{14}{}^{10} \\ 8.\cancel{5}\cancel{0} \\ -\ 0.96 \\ \hline 7.54 \end{array}$$

8. 8.7 + 3.89 + 12.315

$$\begin{array}{r} 8.7 \\ 3.89 \\ +\ 12.315 \end{array} \rightarrow \text{Reorder} \rightarrow \begin{array}{r} {}^{1}\ {}^{1}\ {}^{1} \\ 12.315 \\ 8.700 \\ +\ 3.890 \\ \hline 24.905 \end{array}$$

9. First (10.4 + 3.46) − 5

$$\begin{array}{r} 10.40 \\ +\ 3.46 \\ \hline 13.86 \end{array} \rightarrow \begin{array}{r} 13.86 \\ -\ 5.00 \\ \hline 8.86 \end{array}$$

10. (13.643 + 12.001) − 15.54

$$\begin{array}{r} 13.643 \\ +\ 12.001 \\ \hline 25.644 \end{array} \qquad \begin{array}{r} 25.644 \\ -\ 15.540 \\ \hline 10.104 \end{array}$$

It doesn't matter what order you preform Multiplication

Decimals Multiplication and Division

1. 0.2×1.6

0.2×1.6 → Reorder → 1.6×0.2 (Two decimal places)

0.32

2. 1.7×3.1

3.1×1.7

$217 + 310$

5.27

3. 5.5×4.87

4.87×5.5

$2435 + 24350$

26.785

4. 44.72×8.1

44.72×8.1

$44.72 + 357.760$

362.232

5. 5.928×1.6

5.928×1.6

$31568 + 59280$

9.0848

6. $4.356 \div 9$

$9 \overline{)4.356}$

0.484

-36, 75, -72, 36, -36, 0

7. $4.4856 \div 2.8$

$2.8 \overline{)4.4856}$ → $28 \overline{)44.856}$

1.602

-28, 168, -168, 056, -56, 0

8. $5.263 \div 0.5$

$0.5 \overline{)5.263}$ → $5 \overline{)52.630}$

10.526

-5, 026, -25, 13, -10, 30, -30, 0

Add in as many zeros as you need

9. $6.7346 \div 2.23$

$2.23 \overline{)6.7346}$ → $223 \overline{)673.460}$

3.02

-669, 446, -446, 0

10. $1.0109 \div 0.55$

$0.55 \overline{)1.0109}$ → $55 \overline{)101.090}$

1.838

-55, 460, -440, 209, -165, 440, -440, 0

Decimal Word Problems

11. Jane is making chocolate chip cookies for her school's bake sale. She needs one bag of chocolate chips to make 2 dozen cookies. A bag of chips costs $2.89. Jane is planning to make 8 dozen cookies. Write and Solve an expression that tells Jane how much it will cost for the chips to make the cookies?

$(8 \div 2) \times 2.89 = 4 \times 2.89 =$

2.89

$\times \quad 4$

$\$11.56$

12. Joey needs to travel 15 miles from Smithville to Clarksville and 5 miles from Clarksville to Elmwood. The table below shows two different taxicab companies' rates.

TAXICAB RATES

Sunshine Cab Co.	Flat rate: $5.00 + $1.00 for every 5 miles
Freedom Cab Co.	Flat rate: $2.50 + $0.50 for every mile over 10 miles

Joey will choose one of these four options:

1. Travel with Sunshine Cab Co. to Clarksville, then with Freedom Cab Co. to Elmwood.
   $5.00 + 1(3) \quad + \quad 2.50 + 0(0.50) = \quad 8.00 + 2.50 = \$10.50$
2. Travel with Freedom Cab Co. to Clarksville, then with Sunshine Cab Co. to Elmwood.
   $2.50 + 0.5(5) \quad + \quad 5.00 + 1(1.00) = 2.50 + 2.50 + 5.00 + 1.00 = \$11.00$
3. Travel nonstop with Sunshine Cab Co. the entire way.
   20 miles $\quad 5.00 + 1.00(4) = \quad 5.00 + 4.00 = \$9.00$
4. Travel nonstop with Freedom Cab Co. the entire way.
   $2.50 + 0.5(10) = \quad 2.50 + 5.00 = \$7.50$

Which is the **least expensive** way for Joey to make the trip?

Travel non-stop with Freedom Cab Co.

Greatest Common Factor and Least Common Multiple

1. What is the GCF of 18 and 9?

18: 1, 2, 3, 6, (9) 18
9: 1, 3, (9)
GCF = 9

2. What is the GCF of 24 and 6?

24: 1, 2, 3, 4, (6) 8, 12, 24
6: 1, 2, 3, (6)
GCF: 6

3. What is the GCF of 10 and 30?

10: 1, 2, 5, (10)
30: 1, 2, 3, 5, 6, (10) 15, 30
GCF 10

4. What is the GCF of 5 and 44?

5: (1) 5
44: (1) 2, 4, 11, 22, 44
GCF: 1

5. What is the GCF of 15 and 75?

15: 1, 3, 5, (15)
75: 1, 3, 5, (15) 25, 75
GCF: 15

6. What is the GCF of 12 and 40?

12: 1, 2, 3, (4), 6, 12
40: 1, 2, (4), 5, 8, 10, 20, 40
GCF: 4

7. What is the GCF of 24 and 18?

24: 1, 2, 3, 4, (6) 8, 12, 24
18: 1, 2, 3, (6), 9, 18
GCF: 6

8. What is the GCF of 18 and 45?

18: 1, 2, 3, 6, (9) 18
45: 1, 3, 5, (9), 15, 45
GCF 9

9. What is the GCF of 36 and 90?

36: 1, 2, 3, 4, 6, 9, 12, (18) 36
90: 1, 2, 3, 5, 9, 10, (18) 30, 45, 90
GCF: 18

10. What is the GCF of 50 and 125?

50: 1, 2, 5, 10, (25) 50
125: 1, 5, (25), 125
GCF: 25

use prime factorization

11. What is the LCM of 38 and 2?

38 = 2 · 19

2 = 2

2 · 19 = 38

12. What is the LCM of 25 and 75?

25 = 5 · 5

75 = 3 · 25 = 3 · 5 · 5

5 · 5 · 3 = 75

13. What is the LCM of 4 and 9

4 = 2 · 2

9 = 3 · 3

2 · 2 · 3 · 3 = 36

14. What is the LCM of 35 and 21?

35 = 7 · 5

21 = 3 · 7

3 · 5 · 7 = 105

15. What is the LCM of 16 and 26?

16 = 4 · 4 = 2 · 2 · 2 · 2

26 = 2 · 13

2 · 2 · 2 · 2 · 13 = 208

16. What is the LCM of 30 and 20?

30 = 5 · 6 = 5 · 3 · 2

20 = 5 · 4 = 5 · 2 · 2

2 · 2 · 3 · 5 = 60

17. What is the LCM of 24 and 10?

24 = 6 · 4 = 3 · 2 · 2 · 2

10 = 5 · 2

2 · 2 · 2 · 3 · 5 = 120

18. What is the LCM of 24 and 40?

24 = 4 · 6 = 2 · 2 · 3 · 2

40 = 4 · 10 = 2 · 2 · 5 · 2

2 · 2 · 2 · 3 · 5 = 120

19. What is the LCM of 18 and 27?

18 = 6 · 3 = 2 · 3 · 3

27 = 3 · 9 = 3 · 3 · 3

2 · 3 · 3 · 3 = 54

20. What is the LCM of 6 and 40?

6 = 3 · 2

40 = 4 · 10 = 2 · 2 · 2 · 5

2 · 2 · 2 · 3 · 5 = 120

The Distributive Property

1. $6(5-1) = 6\times5 - 6\times1$
$30 - 6 = 24$

2. $2(5+16) = 2(5)+2(16)$
$= 10 + 32 = 42$

3. $8(4+3) = 8(4)+8(3)$
$32 + 24 = 56$

4. $3(8+6) = 3(8)+3(6)$
$= 24 + 18 = 42$

5. $14(10-2) = 14(10) - 14(2)$
$140 - 28 = 112$

6. $6(13-3) = 6(13) - 6(3)$
$78 - 18 = 60$

7. $6(7+11) = 6(7) + 6(11)$
$= 42 + 66 = 108$

8. $3(7+20) = 3(7) + 3(20)$
$= 21 + 60 = 81$

9. $6(1+11b) = 6(1) + 6(11b)$
$= 6 + 66b$

10. $10(a-5) = 10(a) - 10(5)$
$= 10a - 50$

11. $3(1+2v) = 3(1)+3(2v)$
$3 + 6v$

12. $4(3x+2) = 4(3x) + 4(2)$
$= 12x + 8$

13. $(3-7k)\cdot 2 = 2(3-7k)$
$= 2(3) - 2(7k)$
$= 6 - 14k$

14. $20(8x+20) = 20(8x) + 20(20)$
$160x + 400$

15. $(7+6b)\cdot 15 = 15(7+6b)$
$= 15(7) + 15(6b)$
$105 + 90b$

16. $(2x+3)\cdot 14 = 14(2x+3)$
$= 14(2x) + 14(3)$
$28x + 42$

Evaluating Exponents

1. $2^3 = 2 \cdot 2 \cdot 2 = 8$

2. $10^3 = 10 \cdot 10 \cdot 10 = 1000$

3. $6^2 = 6 \cdot 6 = 36$

4. $3^4 = 3 \cdot 3 \cdot 3 \cdot 3 = 81$

5. $4^0 = 1$

Any base raised to the zero power equals 1

6. $12^2 = 12 \cdot 12 = 144$

7. $3^3 = 3 \cdot 3 \cdot 3 = 27$

8. $6^3 = 6 \cdot 6 \cdot 6 = 216$

9. $4^3 = 4 \cdot 4 \cdot 4 = 64$

10. $7^0 + 5^2 = 7^\circ + 5 \cdot 5 = 1 + 25 = 26$

11. $8^2 - 3^3 = 8 \cdot 8 - 3 \cdot 3 = 64 - 9 = 55$

12. $2^3 - 12^0 = 2 \cdot 2 \cdot 2 - 12^\circ = 8 - 1 = 7$

13. $2^2 \cdot 2^3 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 = 32$

14. $4^3 - 6^2$

$= 4 \cdot 4 \cdot 4 - 6 \cdot 6$

$64 - 36 = 28$

15. $2^4 \cdot 3^2 - 15^0$

$= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 3 - 15^\circ$

$= (16)(9) - 1$

$= 144 - 1$

$= 143$

Solving One-Step Equations

1. $v - 10 = 9$

$+10 \quad +10$

$v = 19$

2. $v + 7 = 10$

$-7 \quad -7$

$v = 3$

3. $x - 3 = 4$

$+3 \quad +3$

$x = 7$

4. $\frac{x}{5} = 2$

$(5)\frac{x}{5} = 2(5)$

$x = 10$

5. $22 = 11k \rightarrow 11k = 22$

$\div 11 \quad \div 11$

$k = 2$

6. $13m = 377$

$\div 13 \quad \div 13$

$m = 29$

7. $40 = 5p \rightarrow 5p = 40$

$\div 5 \quad \div 5$

$p = 8$

8. $8 = p - 13 \rightarrow p - 13 = 8$

$+13 \quad +13$

$p = 21$

9. $198 = 22a \rightarrow 22a = 198$

$\div 22 \quad \div 22$

$a = 9$

10. $\frac{a}{29} = 5$

$(29)\frac{a}{29} = 5(29)$

$a = 145$

11. $x - 11 = 16$

$+11 \quad +11$

$x = 27$

12. $50 = x + 21 \rightarrow x + 21 = 50$

$-21 \quad -21$

$x = 29$

13. $13 + n = 29 \rightarrow n + 13 = 29$

$-13 \quad -13$

$n = 16$

14. $168 = 84n \rightarrow 84n = 168$

$\div 84 \quad \div 84$

$n = 2$

15. $\frac{x}{15} = 11$

$(15)\frac{x}{15} = 11(15)$

$x = 165$

16. $8k = 60$

$8k = 60$

$\div 8 \quad \div 8$

$k = \frac{60}{8} = \frac{15}{2} = 7\frac{1}{2}$

Left to Right

PE(MD)(AS)

Order of Operations

1. $(30-3)\div 3$

$27 \div 3 = 9$

2. $(21-5)\div 8$

$16 \div 8 = 2$

3. $1+7^2$

$1+7\cdot 7 = 1+49 = 50$

4. $5\times 4-8$

$5\times 4 - 8 = 20 - 8 = 12$

5. $8+6\times 9$

$8+6\times 9 = 8+54 = 62$

6. $3+15\times 5 = 3+75 = 78$

7. $9\times(3+3)\div 6$

$9\times 6 \div 6 = 54 \div 6$

$= 9$

8. $(9+18-3)\div 8$

$= (9+18-3)\div 8$

$= (27-3)\div 8$

$= 24 \div 8 = 3$

9. $9+6\div(8-2)$

$= 9+6\div 6$

$= 9+1 = 10$

10. $4(4\div 2+4)$

$= 4(2+4) = 4(6) = 24$

11. $(9\times 2)\div(2+1) = 18\div(2+1)$

$= 18\div 3 = 6$

12. $(4-1+8\div 8)\times 5$

$= (4-1+1)\times 5 = 4\times 5 = 20$

13. $(10\times 2)\div(1+1)$

$20 \div 2 = 10$

14. $7\times 9 - 7^2 - 3\times 4$

$7\times 9 - 49 - 3\times 4 = 63 - 49 - 12$

$= 14 - 12 = 2$

15. $8^2 - 1 - (18-2)\div 8$

$64 - 1 - 16 \div 8$

$64 - 1 - 2 = 63 - 2 = 61$

16. $(7+1)^2 - 4^2 + 12^0$

$(8)^2 - 4^2 + 12^0$

$= 64 - 16 + 1$

$= 48 + 1 = 49$