Basic Skills Assessment Practice Problems

The Basic Skills Assessment consists of 25 problems that are similar to, but not limited to, the following sample problems. The actual exam questions do not have multiple parts. A passing score is 80% (20 correct). Calculators are NOT permitted on this test.

1. Add, subtract whole numbers
   a. $1428 + 532$
   b. $1428 - 1539$
   c. $6523 - 734$
   d. $3217 - 234$
   e. $4343 - 654$
   f. $3253 + 754$
   g. $1756 - 374$
   h. $5523 - 734$
   i. $6553 - 674$
   j. $5453 - 774$

2. Multiply, divide whole numbers
   a. $8428 \div 28$
   b. 68×135
   c. $1035 \div 45$
   d. $1575 \div 63$
   e. $1368 \div 24$
   f. $2562 \div 42$
   g. $3060 \div 85$
   h. $4960 \div 31$
   i. $2331 \div 63$
   j. 103×45

3. Add, subtract simple fractions
   a. $\frac{2}{3} + \frac{5}{8} - \frac{1}{2}$
   b. $\frac{5}{6} + \frac{3}{4} + \frac{2}{3}$
   c. $\frac{3}{8} + \frac{1}{2} - \frac{1}{6}$
   d. $\frac{2}{5} + \frac{3}{4} - \frac{1}{3}$
   e. $\frac{7}{8} + \frac{3}{4} - \frac{11}{12}$
   f. $\frac{17}{10} - \frac{2}{3} - \frac{7}{15}$
   g. $-\frac{3}{8} - \frac{3}{5} + \frac{5}{4}$
   h. $\frac{7}{10} - \frac{3}{4} + \frac{3}{8}$
   i. $\frac{3}{5} + \frac{7}{10} - \frac{13}{20}$
   j. $\frac{5}{9} - \frac{3}{4} - \frac{5}{12}$

4. Add, subtract mixed numbers (leave answer as a mixed number)
   a. $248\frac{1}{3} + 14\frac{5}{6}$
   b. $114\frac{3}{4} + 205\frac{1}{3}$
   c. $193\frac{1}{3} - 28\frac{1}{2}$
   d. $413\frac{2}{5} - 117\frac{1}{2}$
   e. $52\frac{1}{2} - 23\frac{2}{5}$
   f. $53\frac{2}{7} - 35\frac{1}{2}$
   g. $68\frac{4}{5} - 29\frac{3}{4}$
   h. $73\frac{2}{3} - 25\frac{4}{7}$
   i. $83\frac{1}{4} - 37\frac{1}{3}$
   j. $53\frac{3}{5} - 64\frac{5}{6}$

5. Add, subtract integers
   a. $45 + (-34) + (-75)$
   b. $-53 - (-32)$
   c. $124 + (-43) - 27$
   d. $-15 + 12 - (-73)$
   e. $-23 + (-31) - (-73)$
   f. $-15 + 12 - 72$
   g. $16 - 34 - (-72)$
   h. $115 - 12 + (-43)$
   i. $-45 + 15 - (-23)$
   j. $-15 + 15 - (-23)$

6. Add, subtract decimals
   a. $0.51 - 0.013$
   b. $2.8 - 1.007$
   c. $35 - 0.73$
   d. $0.053 - 0.0084 + 0.0309$
   e. $0.2 + 0.03 + 0.0007$
   f. $0.14 + 0.3 - 0.0071$
   g. $0.27 + 0.093 - 0.303$
   h. $0.7 + 2.093 - 1.03$
   i. $1.27 + 0.093 - 0.301$
   j. $0.127 - 0.93 + 0.323$
   k. $0.2 + 1.093 - 0.03$
   l. $0.056 + 0.93 - 0.203$

7. Multiply, divide fractions (reduce to lowest terms)
   a. $\frac{4}{5} \times \frac{20}{7} \times \frac{7}{16}$
   b. $\frac{2}{3} \times \frac{6}{5} \times \frac{11}{12}$
   c. $\frac{4}{7} \times \frac{4}{3} \times \frac{11}{4}$
   d. $\frac{10}{7} \times \frac{4}{5} \times \frac{14}{8}$
   e. $\frac{3}{4} \div \frac{7}{5}$
   f. $\frac{7}{5} \div \frac{3}{4}$
   g. Divide $\frac{7}{5}$ into $\frac{3}{4}$
   h. $\frac{10}{3} \div \frac{3}{2} \times \frac{5}{18}$
   i. $\frac{2}{5} \times \frac{3}{4} \div \frac{3}{20}$
   j. $\frac{3}{4} \div \frac{3}{20} \times \frac{4}{5}$
   k. $\frac{2}{5} \times \frac{7}{8} \div \frac{14}{25}$
   l. $\frac{2}{3} \div \frac{6}{5} \div \frac{3}{20}$
   m. $\frac{10}{3} \div \frac{3}{4} \div \frac{5}{3}$
   n. Divide $\frac{3}{4}$ into $\frac{7}{5}$

8. Multiply, divide integers
   a. $(-3)(-1) + (-2)(2)$
   b. $(-4)(2) - (-3)(-2)$
   c. $(1)(-5) + (-2)(0)$
   d. $-\frac{16}{4(-2)}$
   e. $\frac{36}{-4(-3)}$
   f. $(-10)(2) - 3(7)$
   g. $(-6)(-2) - (9)(-3)$
   h. $(3)(-6) + (-3)(20)$
   i. $(-5)(-4) - (-2)(10)$
   j. $(5)(-4) - (-2)(11)$

9. Multiply, divide decimals
   a. 2.16×6.7
   b. $0.7452 \div 0.36$
   c. $0.04935 \div 0.21$
   d. 0.015×117.5
   e. $1603.8 \div 121.5$
   f. $1788.5 \div 122.5$
   g. $1403.75 \div 112.3$
   h. $1593.9 \div 103.5$
   i. $1629.25 \div 122.5$
   j. 14.8×13.25

10. Simplify an expression involving exponents
   a. $2^5 + 3^2$
   b. $(2^3 + 3)^2$
   c. $2^3 - 3^2$
   d. $(2^4)(3^3)$
   e. $(3^2 \times 3^3) + 3$
   f. $8^2 - 2^4 + 1^{13}$
   g. $(5-2)^2 - 2^4 - 3^2$
   h. $1^4 - 3^2 + (2-1)^4$
   i. $(-8)^2 + 2^4 - 1^3$
   j. $-2^2 - 2^4 + 2^0$
   k. $3^2 + 2^3 - (10-7)^2$
   l. $-2^2 + 4^3 - (9-7)^2$

11. Simplify an expression using order of operations
   a. $21 + 11 \times 0$
   b. $(21 + 11) \times 0$
   c. $21 + (11 \times 0)$
   d. $15 + 2 \times 7$
   e. $4 \div 2 \times 8 + 3$
   f. $4 \times 2 \div 8$
   g. $24 \div (5-2) \times 11$
   h. $12 \div (6-2) \times 7$
   i. $4 \div (-5+2) \times 12$
   j. $20 \div (-2+4) \times 3 - 1$
   k. $2 - 24(5-4) + 10^2$

12. Ordering of rational numbers: Which of the following is greater?
   a. $\frac{13}{14}, \frac{14}{15}$
   b. $\frac{11}{12}, \frac{7}{8}$
   c. $\frac{118}{203}, \frac{117}{200}$
   d. $\frac{23}{31}, 0.75$
   e. $\frac{5}{8}, 0.63$
   f. $\frac{7}{9}, 0.79$

13. Convert fractions to decimals
    a. $\frac{7}{5}$
    b. $\frac{3}{4}$
    c. $\frac{11}{40}$
    d. $\frac{5}{8}$
    e. $\frac{39}{60}$
    f. $\frac{9}{8}$

14. Write the prime factorization of each of the following
    a. 126
    b. 189
    c. 252
    d. 234
    e. 378
    f. 162

15. Using percents to find part or whole
    a. What percent of 9 is 6?
    b. What percent of 9 is 12?
    c. What is 11% of 93?
    d. 96 is 12% of what number?
    e. 135% of 83 is what number?
    f. 180% of what number is 810?
    g. 250 is 250% of what number?
    h. 75 is what percent of 50?
    i. 180% of what number is 612?
    j. 90% of what number is 117?
    k. What number is 140% of 250?
    l. What number is 130% of 250?
    m. 80% of what number is 420?
    n. 120% of what number is 300?
    o. 120% of what number is 480?

16. Solving a linear equation in one variable
    a. $3x - 2 = 16$
    b. $4x + 21 = 57$
    c. $9x + 16 = -11$
    d. $8x - 22 = 82$
    e. $7x + 16 = 233$
    f. $3x - 12 = 57$
    g. $8x + 17 = 145$
    h. $6x - 18 = 72$
    i. $5x + 16 = 131$
    j. $-2x + 16 = 28$

17. Estimation of Roots: Between what two integers is each of the following?
    a. $\sqrt{53}$
    b. $\sqrt{78}$
    c. $-\sqrt{67}$
    d. $-\sqrt{89}$

18. Application: Fractions to decimals to percents
    a. $\frac{7}{8}$ of a pizza is what percent of a pizza?
    b. $\frac{4}{5}$ of a class is what percent of a class?
    c. $\frac{3}{60}$ of an arc is what percentage of an arc?
    d. $\frac{11}{20}$ of a pie is what percentage of a pie?
    e. $\frac{6}{15}$ of a pint is what percentage of a pint?
    f. $\frac{5}{4}$ of a mile is what percentage of a mile?
    g. $\frac{9}{8}$ of an hour is what percentage of an hour?
    h. $\frac{12}{12}$ of a foot is what percentage of a foot?

19. Application: Percents to decimals to fractions (reduce to simplest form)
    a. 55% of an acre is what fraction of an acre?
    b. 36% of a kilometer is what fraction of a kilometer?
    c. 84% of a loaf of bread is what fraction of a loaf of bread?
    d. 140% increase in the size of a cereal box is what fraction of an increase in size?

20. Multiplication and Division involving zero
    a. $0 \div 6$
    b. $6 \div 0$
    c. $0 \div 0$
    d. 0×6
    e. 6×0
    f. 0×0
    g. Simplify: $\frac{-5\times3+11}{1-(8-7)}$
    h. Simplify: $\frac{7\times2-2-12}{-4\times6}$
    i. Simplify: $\frac{6\times(-2)+12}{8\times3}$
    j. Simplify: $\frac{7-2\times0+11}{9-9}$

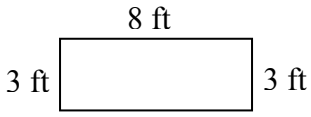
21. Elapsed time
    a. Jill began her yard work at 11:15 a.m. and ended at 4:05 p.m. How many hours and minutes did she work?
    b. John finished his 4 hour and 25 minute bicycle trip at 3:40 p.m. At what time did he begin his trip?
    c. If Sally will spend 15 hours and 38 minutes traveling from Washington to Miami and starts her trip at 2:15 p.m., when will she arrive?
    d. Phil drove for 6 hours and 28 minutes. If he left at 8:42 a.m., what time did he arrive?
    e. Chris went to sleep at 10:42 p.m. He woke up at 6:19 a.m. How many hours and minutes did Chris sleep?
    f. Sarah drove for 9 hours and 48 minutes. If she arrived at 8:42 p.m., what time did she leave?
    g. Justin went outside to play at 11:25 a.m. If he came in for dinner at 5:42 p.m., how many hours and minutes was he outside?
    h. Mark hiked for 5 hours and 18 minutes. If he started at 7:52 a.m., what time did he end?
    i. Matt studied from 11:53 a.m. to 1:52 a.m., how many hours and minutes did he study?

22. Representation of money
    a. Express 7 quarters, 27 dimes, 5 nickels and 11 pennies in terms of dollars and cents.
    b. Express 3 quarters, 17 dimes, 15 nickels and 6 pennies in terms of dollars and cents.
    c. Express 9 quarters, 24 dimes, 14 nickels and 28 pennies in terms of dollars and cents.

23. Ratio/proportion
    a. $\frac{3}{5}$ of a pizza is how many 15ths?
    b. $\frac{3}{8}$ of a pie is how many 8ths?
    c. $\frac{2}{7}$ is how many twenty-eighths?
    d. $\frac{3}{8}$ is how many sixty-fourths?

24. Unit pricing
    a. How much is 4.53 pounds of meat at $1.39 per pound (to the nearest cent)?
    b. 3.89 pounds of meat costs $5.29. To the nearest cent, what is the price per pound?
    c. To the nearest hundredths of a pound, how much meat at $1.48 per pound can be bought with $5.00?
    d. At $3.12 per pound, how many pounds of sugar can be purchased with $21.21? *Round to tenth.*

25. Area, perimeter
    a. What is the area of the rectangle shown? Include proper units in your answer.

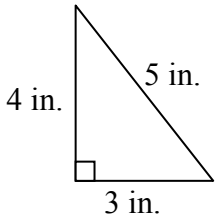


    b. What is the perimeter of the rectangle shown in part (a)? Include proper units in your answer.

    c. What is the area of a circle with a diameter of 6 cm? Include proper units in your answer, and round your answer to the nearest hundredth, if necessary. (Use the approximation that pi = 3.14).

    d. What is the circumference of a circle with a diameter of 6 cm? Include proper units in your answer, and round your answer to the nearest hundredth, if necessary. (Use the approximation that pi = 3.14).

    e. What is the area of the triangle shown? Include proper units in your answer, and round your answer to the nearest hundredth, if necessary.



    f. What is the perimeter of the triangle shown in part (e)? Include proper units in your answer, and round your answer to the nearest hundredth, if necessary.

    g. Find the area of a circle with radius 4 cm. Include proper units in your answer, and round your answer to the nearest hundredth, if necessary. (Use the approximation that pi = 3.14).

    h. Determine the circumference of a circle with radius 8 cm. Include proper units in your answer, and round your answer to the nearest hundredth, if necessary. (Use the approximation that pi = 3.14).