

ARITHMETIC

The Elementary Algebra section of the Computerized Placement Test (CPT) consist of seventeen (17) multiple-choice questions. This exam has one question per screen with directions given for each individual question. The following are examples of the types of questions found on the CPT.

Directions: Read all directions carefully. Be sure of your answer selection before you confirm your answer and move on to the next screen. You can not go back to change an answer. **Calculators** are **not** allowed unless one appears on the screen during the test. You will be supplied scratch paper and a pencil to be used for all other questions.

1. $3\frac{5}{8} \times 2 =$

a. $6\frac{3}{4}$ b. $7\frac{1}{4}$

c. $6\frac{1}{4}$ d. $7\frac{3}{4}$

2. $\frac{1}{4} \times 6\frac{5}{8} =$

a. $2\frac{1}{8}$ b. $1\frac{19}{32}$

c. $6\frac{5}{32}$ d. $1\frac{21}{32}$

3. $7 - 3.27 =$

a. 3.73 b. 4.27

c. 3.27 d. 3.37

4. $12 - 5.62 =$

a. 7.38 b. 7.62

c. 6.38 d. 6.59

5. $12 \div 1\frac{5}{6} =$

a. $12\frac{5}{6}$ b. $10\frac{1}{2}$

c. $6\frac{6}{11}$ d. $5\frac{12}{23}$

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

a. 3 b. $3\frac{1}{3}$

c. $4\frac{1}{3}$ d. 5

7. $\frac{1}{3} + \frac{3}{4} + \frac{2}{6} =$

a. $1\frac{12}{13}$ b. $2\frac{1}{3}$

c. $1\frac{5}{12}$ d. $1\frac{3}{5}$

8. $4\frac{1}{4} - \frac{5}{6} =$

a. $3\frac{5}{12}$ b. $4\frac{4}{2}$

c. $2\frac{7}{24}$ d. $3\frac{5}{7}$

9. How many sixths are in 11.62?

a. 69.33 b. 59.54

c. 68.72 d. 69.72

27. $7\frac{1}{2} + 6\frac{3}{4} - 5\frac{2}{3} =$

a. $13\frac{5}{4}$

b. $14\frac{1}{4}$

c. $8\frac{7}{12}$

d. $9\frac{5}{12}$

28. $\frac{1}{3} + \frac{4}{7} - 0.13 =$

a. .834

b. .774

c. .692

d. .679

29.
$$\begin{array}{r} 35.492 \\ 589.3 \\ 12 \\ + \underline{6.381} \end{array}$$

a. 477.78

b. 643.173

c. 47.778

d. 6442.3

30. $69.4 - 0.581 =$

a. 113

b. .113

c. 68.819

d. 68819

31. $61.69 \times 3.24 =$

a. 199.8756

b. 1,998.756

c. 19,987.56

d. 1,998,756

32. Which fraction is equivalent to 0.20?

a. $\frac{1}{2}$

b. $\frac{1}{3}$

c. $\frac{1}{3}$

d. $\frac{1}{5}$

Answers and Explanations

1. **B**, $3\frac{5}{8} \times 2 =$

change mixed numbers to improper fractions to multiply or divide
($8 \times 3 + 5 = 29$)

$$3\frac{5}{8} \times 2 = \frac{29}{8}$$

$$\frac{29}{8} \times \frac{2}{1} = \frac{29}{4} = 7\frac{1}{4}$$

2. **D**, $\frac{1}{4} \times 6\frac{5}{8} =$

$$\frac{1}{4} \times \frac{53}{8} = \frac{53}{32} = 1\frac{21}{32}$$

3. **A**, $7 - 3.27 =$

to add or subtract with decimals, align the decimal points to ensure proper calculation, zeroes may be added as place holders.

$$\begin{array}{r} 7.00 \\ - 3.27 \\ \hline 3.73 \end{array}$$

4. **C**, $12 - 5.62 =$

$$\begin{array}{r} 12.00 \\ - 5.62 \\ \hline 6.38 \end{array}$$

5. **C**, $12 \div 1\frac{5}{6} =$

when dividing fractions, the second fraction is inverted and then the problem is changed to a multiplication problem (in this case the mixed number should first be changed to an improper fraction, then inverted)

$$\frac{12}{1} \div \frac{11}{6} = \frac{12}{1} \times \frac{6}{11} = \frac{72}{11} = 6\frac{6}{11}$$

6. **A**, $7 \div 2\frac{1}{3} =$

$$\frac{7}{1} \times \frac{3}{7} = \frac{3}{1} = 3$$

7. **C**, $\frac{1}{3} + \frac{3}{4} + \frac{2}{6} =$

when adding or subtracting fractions, they must have a common denominator before they can be combined

$$\begin{array}{r} \frac{1}{3} = \frac{4}{12} \\ \frac{3}{4} = \frac{9}{12} \\ + \frac{2}{6} = \frac{4}{12} \\ \hline = \frac{17}{12} = 1\frac{5}{12} \end{array}$$

8. **A**, $4\frac{1}{4} - \frac{5}{6} =$

find common denominator

$$\begin{array}{r} 4\frac{1}{4} = 4\frac{3}{12} \\ - \frac{5}{6} = \frac{10}{12} \\ \hline 3\frac{5}{12} \end{array}$$

can't subtract from $\frac{10}{12}$, so you borrow from the 4

9. **D**, $\frac{11.62}{\frac{1}{6}} = 11.62 \times \frac{6}{1} = 69.72$

10. **C**, $16 \times 6\frac{2}{3} = 16 \times \frac{20}{3} = \frac{320}{3}$
= 106.67 or 107 feet

11. **D**, A decimal in the divisor must be moved to the end of the number—the number of places moved is duplicated in the dividend.

$$\begin{array}{r} 2.94 \text{ and } 12/32 \\ .32 \overline{)94.2} \\ \underline{-64} \\ 302 \\ \underline{-288} \quad 12/32 \text{ reduces to } 3/8 \\ 140 \\ \underline{-128} \\ 12 \end{array}$$

12. **D**,

$$\begin{array}{r} 85 \\ 6.7 \overline{)569.5} \\ \underline{-536} \\ 335 \\ \underline{-335} \\ 0 \end{array}$$

13. **A**, $\frac{5}{100}$

$$\begin{array}{r} .05 \\ 100 \overline{)5.00} \\ \underline{-500} \\ 0 \end{array}$$

A decimal and zeros must be added so that the problem may be worked. Remember to place the decimal in the proper position in the answer.

14. **B**, $\sqrt{.81}$ The radical ($\sqrt{}$) indicates that the square root of the number under the radical is the answer. Factor the number...
 $\sqrt{.81} = \sqrt{.9 \times .9}$
 .9 is the square root of .81

15. **C**, Factor the number under the radical.
 $\sqrt{.0004} = \sqrt{.02 \times .02}$
 Remember (.02 × .02 = .0004) that there must be the same number of decimal places in the answer as there are in the problem.

16. **D**, $6in \times \frac{10km}{1in} \times \frac{1000m}{1km} =$
 $\frac{6 \times 1 \times 1000m}{1 \times 1} = 60000m$
 Using a scale in which 1 inch equals 1 km and there are 1000 m in a kilometer.

17. **C**, $47m \times \frac{1000mm}{1m} = 47000mm$
 1 meter = .0001 kilometers
 = .01 decameters
 = 10 decimeters
 = 100 centimeters
 = 1000 millimeters

18. **C**, To produce an equivalent fraction, multiply or divide both the numerator (top) and the denominator (bottom) by the same value (number).

19. **C**, $\frac{3.2}{0.018}$

$$\begin{array}{r} 1.777... \\ 0.018 \overline{)3.200} \\ \underline{-18} \\ 140 \\ \underline{-126} \\ 140 \\ \underline{-126} \\ 140 \text{ etc..} \end{array}$$

177.7 is closest to 180.

20. **A**, To find the percentage of a number, first change the percent to a decimal and then multiply by the number.

$$7\% = .07$$

$$.07 \times 43 = 3.01$$

21. **B**, If given the percent and the percentage and asked to find the number, first change the percent to a decimal and divide into the percentage.

$$23\% = .23$$

$$\frac{64}{.23} \text{ or } .23 \overline{) 200}$$

$$\begin{array}{r} 64 \\ 23 \overline{) 64.00} \\ \underline{64} \\ 0 \end{array}$$

22. **D**, $37\% = .37$
 $.37 \times 500 = 185$

23. **C**, If given the number and percentage and asked to find a percent, first divide the percentage by the number, then multiply the answer by 100%.

$$\frac{15}{250} \text{ or } 250 \overline{) 15.00}$$

$$\begin{array}{r} .06 \\ 250 \overline{) 15.00} \\ \underline{-1500} \\ 0 \end{array}$$

$$.06 \times 100\% = 6\%$$

24. **A**, Hint: "the percent of a number" indicates a decimal number answer that is then multiplied by 100%.

$$? \times 600 = 150$$

$$? = \frac{150}{600} = .25 \text{ , } .25 \times 100\% = 25\%$$

25. **A**, $\frac{12}{85}$ or $\frac{.141}{85 \overline{) 12.000}}$

$$\begin{array}{r} .141 \\ 85 \overline{) 12.000} \\ \underline{-85} \\ 350 \\ \underline{-340} \\ 100 \\ \underline{-85} \\ 14 \end{array}$$

$$.141 \times 100\% = 14.1\%$$

26. **D**, $5\% = .05$
 $.05 \times 64 = 3.2$

$$7\frac{1}{2} = \frac{2}{4}$$

27. **B**, $+6\frac{3}{4} = \frac{3}{4}$

$$13 \quad \frac{5}{4} = 14\frac{1}{4}$$

$$14\frac{1}{4} = \frac{3}{12}$$

$$\underline{-5\frac{2}{3} = \frac{8}{12}}$$

$$8 \quad \frac{7}{12}$$

28. **B**, $\frac{1}{3} + \frac{4}{7} - 0.13 =$

$$\frac{1}{3} = \frac{7}{21}$$

$$+ \frac{4}{7} = \frac{12}{21}$$

$$\underline{ \frac{19}{21}} = .904$$

$$.904$$

$$\underline{- .130}$$

$$.774$$

29. **B**, Line up decimal points and then add. Can fill in voids with 0's as place holders.

$$\begin{array}{r} 35.492 \\ 589.300 \\ 12.000 \\ + 6.381 \\ \hline 643.173 \end{array}$$

30. **C**, Line up decimal points and then subtract. Use 0's as place holders.

$$\begin{array}{r} 69.400 \\ -0.581 \\ \hline 68.819 \end{array}$$

31. **A**, There are four decimal places in the problem so, there should be four decimal places in the answer.

$$\begin{array}{r} 61.69 \\ \times 3.24 \\ \hline 24676 \\ 12338 \\ +18507 \\ \hline 199.8756 \end{array}$$

32. **D**, $.2 = 2$ tenths or $\frac{2}{10}$ which reduces to $\frac{1}{5}$

33. **A**, $\frac{4}{5} = 5 \overline{)4.0}$

$$.8 \times 100\% = 80\%$$

34. **D**, 340 rounds to 300 and 580 rounds to 600

$$300 \times 600 = 180,000$$

35. **D**, $45 \text{ m} = 4500 \text{ cm}$

$$\begin{array}{r} 4500 \\ -345 \\ \hline 4155 \text{ cm} \end{array}$$

4155 cm equals 41550 mm and 4155 cm also equals 41.55 m