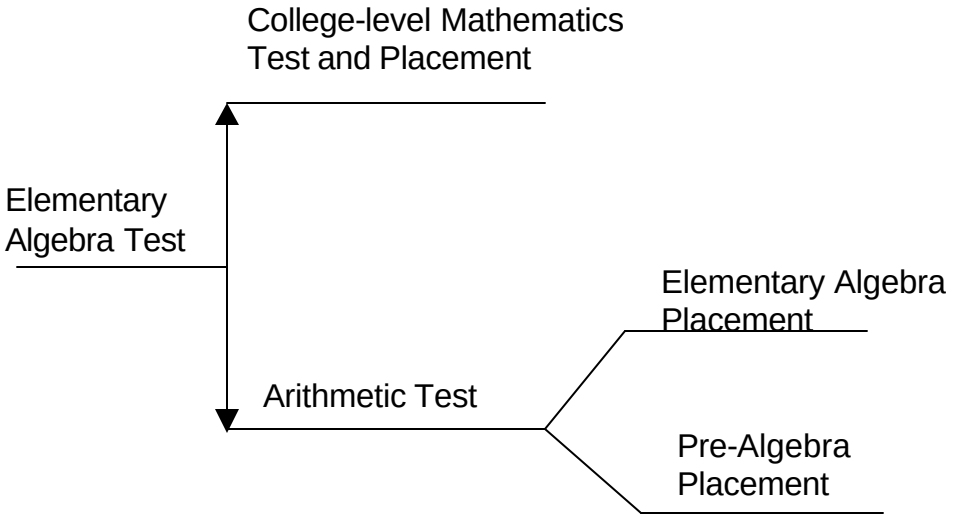
CPT Mathematics Review

The College Entry-Level Placement Test (CPT) for mathematics will be used to determine your placement into a mathematic class. The test begins at the elementary algebra level. If your algebra skills are strong enough, you will be branched into the college-level mathematics test for course placement. If your algebra skills are weak, you will be branched down into the arithmetic section of the test. The arithmetic portion of the test will measure your ability to work with whole numbers, fractions, decimals, percents, and word problems that can be solved without using algebra. If your arithmetic skills are strong enough you will be placed into Elementary Algebra; if not you will be placed into Pre-Algebra.



The attached sample tests are representative of the type and style of questions that you will see on the CPT. If you have difficulty with a type of question, such as a fraction question, you should study that concept more thoroughly. The Learning Support Centers and libraries on each campus will have additional textbooks available for you to use to review for the CPT. These tests are intended to function as a review of skills, not a substitution for knowledge. Simply memorizing how to do these specific problems will not guarantee that you will pass the CPT.

Good luck as you prepare for this most important placement test.

Arithmetic Review

Read all questions carefully. Make sure you are answering the question that is being asked. Work problems out completely. Try not to guess.

1. How many three foot wide pieces of fencing are needed to surround the **perimeter** of a yard that is 15 feet long and 24 feet wide?

   A) 13
   B) 26
   C) 39
   D) 78

2. Mary's savings account contained $2,491. On Monday she withdrew $725 and on Thursday she deposited $984. How much was in her savings account after these transactions?

   A) $782
   B) $2232
   C) $2750
   D) $4200

3. The Smith family moved into a new home and had to buy new kitchen appliances. Estimate the cost to the nearest **hundred** dollars for the purchase of a dishwasher $695, stove $999, and refrigerator $1599.

   A) $3290
   B) $3293
   C) $3200
   D) $3300

4. A movie theater has seats arranged in 25 rows with 30 seats in each row. How many seats are in the theater?

   A) 55
   B) 110
   C) 750
   D) 562,500

5. A train carrying $\frac{3}{4}$ ton of coal drops off $\frac{1}{3}$ ton in Pittsburgh, then drops off $\frac{1}{6}$ ton in Buffalo. How much coal is the train carrying after it leaves Buffalo?

   A) $\frac{1}{3}$ ton
   B) $\frac{1}{4}$ ton
   C) $\frac{1}{12}$ ton
   D) $\frac{7}{12}$ ton

6. Find the sum in lowest terms. $1\frac{1}{4}+3\frac{2}{5}$

   A) $4\frac{1}{10}$
   B) $4\frac{1}{3}$
   C) $4\frac{13}{20}$
   D) $4\frac{3}{20}$

7. Jennifer borrowed $720 for a new TV. She has paid $\frac{3}{4}$ of the debt. How much does she **still owe**?

   A) $180.00
   B) $540.00
   C) $719.25
   D) $960.00

8. Which of the following is the best approximation for the product of 42.081×99.91?

   A) 42
   B) 420
   C) 4200
   D) 42000

9. $6\frac{1}{5} - 2\frac{3}{5}$

A) $4\frac{2}{5}$
B) $3\frac{2}{5}$
C) $3\frac{3}{5}$
D) $4\frac{3}{5}$

10. $\frac{16}{5} \div 5$

A) 3
B) $\frac{16}{25}$
C) 16
D) 31

11. Which of the following **cannot** be true about the statement $0.9 < X < 1.5$?

A) X = 0.95
B) X = 0.145
C) X = 1.13
D) X = 1

12. If a recipe calls for $2\frac{1}{2}$ cups of flour and you want to make five times the recipe, how much flour do you need?

A) $10\frac{1}{2}$ cups
B) $7\frac{1}{2}$ cups
C) $12\frac{1}{2}$ cups
D) $2\frac{5}{2}$ cups

13. Find the average of the following list of data: 14.2, 18.3, 9.6, 11.4, and 7

A) 11.9
B) 10.1
C) 12.1
D) 12.3

14. Write 0.68 as a fraction in lowest terms.

A) $\frac{19}{25}$
B) $\frac{33}{50}$
C) $\frac{17}{25}$
D) $\frac{16}{25}$

15. There are 40 women and 35 men in the drama club. Find the ratio (in lowest terms) of women to the total number of students in the club.

A) $\frac{7}{8}$
B) $\frac{7}{15}$
C) $\frac{8}{7}$
D) $\frac{8}{15}$

16. A basketball player makes 6 free throws in his first 10 attempts. If he continues at the same rate, how many free throws will he make in 25 attempts?

A) 9
B) 12
C) 15
D) 18

17. Which of the following cans/bottles of Coca-Cola has the lowest cost per ounce?
    A) 12 oz for 55¢
    B) 16 oz for 75¢
    C) 32 oz for $1.09
    D) 48 oz for $1.69

18. 17 is what percent of .17?

    A) 1%
    B) 100%
    C) 1000%
    D) 10000%

19. Mary and her five children are to inherit a total of $12,400. Mary is to receive $\frac{1}{4}$ of the money and the children are to evenly split the remaining moneys. How much money will each child receive?

    A) $1860
    B) $2480
    C) $3100
    D) $9300

20. Jill is buying new appliances. The cost of the dishwasher is $459 and the cost of the microwave is $289. What is the **total** price including the sales tax rate of 7%?

    A) $52.36
    B) $800.36
    C) $748.00
    D) $700.36

21. A watch loses 15 seconds every hour. How many **minutes** will the watch lose in a day?

    A) 360
    B) 24
    C) 96
    D) 6

22. If John has test scores of 90 and 76 with one test remaining to be taken, what score must he make on the last test to end up with an 86 average.

    A) 96
    B) 86
    C) 92
    D) 84

23. Dr. Peebles wants to buy tickets for the Oceanography Class to attend a Marine Science Center fieldtrip. If the tickets cost $32 each and the department has $3408 budgeted for the trip, what is the greatest number of tickets that can be purchased?

A) 107 tickets
B) 106 tickets
C) 16 tickets
D) 10 tickets

24. Which of the following is NOT a true statement?

A) $\sqrt{.04} = .02$
B) $\frac{1}{2} \div \frac{1}{4} = 2$
C) $13^2 = 169$
D) $3.10 \leq 3.100$

25. A bag has one red ball, three blue balls, and twice as many green balls as blue balls. If one ball is drawn (with out looking) from the bag, what are the chances that the ball will be blue?

A) 3 in 10
B) 3 in 8
C) 1 in 3
D) 1 in 7

26. All of the following are true statements EXCEPT

A) $\frac{135}{50} = \frac{125}{50} + \frac{10}{50}$
B) $\frac{135}{50} = 5 - 2.3$
C) $\frac{135}{50} = \frac{150}{50} - 0.15$
D) $\frac{135}{50} = 2 \bullet 1.35$

27. Find the **area** of a circle that has a radius of 3.5 cm. Use 3.14 for the value of p.

A) 21.98 cm^2
B) 38.465 cm^2
C) 43.96 cm^2
D) 153.86 cm^2

28. For a chemistry experiment $\frac{3}{4}$ of an ounce of a certain chemical is needed. If a bottle of the chemical holds 96 ounces, how many times can the experiment be completed?

A) 128
B) 72
C) 24
D) 32

29. Find the **area** of a triangle with base = 6 m and height = 5 m.

A) $15\ m^2$
B) $26\ m^2$
C) $30\ m^2$
D) $105\ m^2$

30. $\dfrac{\frac{3}{10}}{\frac{1}{6}}$

A) $\frac{1}{20}$
B) $\frac{9}{5}$
C) $\frac{5}{9}$
D) 20

Solutions to Arithmetic CPT Practice

1. B

$$perimeter = 2\times 15 + 2\times 24$$
$$= 30 \quad + \quad 48$$
$$= 78 \text{ feet of fencing needed}$$

Each section of fencing is 3 feet wide. $78 \div 3 = 26$ pieces of fencing .

2. C $\$2491 - \$725 + \$984 = \$2750$

3. D

When estimating round numbers first.

$\$695 = \quad \$700$

$\$999 = \quad \$1000$

$\$1599 = \$1600$ Now add $\$700 + \$1000 + \$1600 = \$3300$

4. C $25 \times 30 = 750$ seats

5. B

$$\frac{3}{4} = \frac{9}{12} \qquad \frac{5}{12} = \frac{5}{12}$$
$$-\frac{1}{3} = \frac{4}{12} \qquad -\frac{1}{6} = \frac{2}{12}$$
$$\frac{5}{12} \qquad \frac{3}{12} = \frac{1}{4}$$

6. C

$$1\frac{1}{4} = \frac{5}{20}$$
$$+3\frac{2}{5} = \frac{8}{20}$$
$$4 \qquad \frac{13}{20} = 4\frac{13}{20}$$

7. A $\$720 \times \frac{3}{4} = \$540$ amount paid. $720 - $540 = $180.

8. C $42.081 \times 99.91 \cong 42 \times 100 = 4200$

9. C
$$6\frac{1}{5} = 5\frac{6}{5}$$
$$\underline{-2\frac{3}{5} = -2\frac{3}{5}}$$
$$3\frac{3}{5}$$

10. B
$$\frac{16}{5} \div 5$$
$$\frac{16}{5} \times \frac{1}{5}$$
$$\frac{16}{25}$$

11. B First line up the numbers according to their size inserting zeros to the left of the decimal point to help with comparison.
0.145
0.900 ***given number***
0.950
1.000
1.130
1.500 ***given number***
The number which does not fit in the range is 0.145

12. C
$$2\frac{1}{2} \times 5$$
$$\frac{5}{2} \times \frac{5}{1}$$
$$\frac{25}{2} = 12\frac{1}{2}$$

13. C

$$\begin{array}{r} 14.2 \\ 18.3 \\ 9.6 \\ 11.4 \\ +\,7.0 \\ \hline 60.5 \end{array}$$

Next divide the total by 5.

$60.5 \div 5 = 12.1$

14. C $\dfrac{68}{100}\dfrac{\div 4}{\div 4} = \dfrac{17}{25}$

15. D Total students 40 + 35 = 75 $\dfrac{\text{women}}{\text{total}} = \dfrac{40}{75} = \dfrac{\div 5}{\div 5} = \dfrac{8}{15}$

$\dfrac{6}{10} = \dfrac{?}{25}$ Now cross multiply

16. C $150 = 10 \times ?$ Divide both sides of the equation by 10

$? = 15$

17. C To calculate cost per ounce you divide the cost of each product by the price of each product. Remember to change $ to ¢ for equal comparisons.

$55 \div 12 = 4.58\overline{3}$

$75 \div 16 = 4.6875$

$109 \div 32 = 3.40625$

$169 \div 48 = 3.5208\overline{3}$

The least expensive is the 32 ounce container at 3.40625¢ per ounce

$\dfrac{17}{.17} = \dfrac{?}{100}$ Now cross multiply

18. D $1700 = .17 \times ?$ Divide both sides of the equation by .17

$? = 10000$

19. A Since Mary gets $\frac{1}{4}$ of the total the children will get the remaining $\frac{3}{4}$ to share. Each child will then get $\frac{1}{5}$ of this amount.

$\$12400 \times \frac{3}{4} \times \frac{1}{5} = \$1860$

20. B
$\$459 + \$289 = \$748$
$\$748 \times .07 = \$52.36$
$\$748 + 52.36 = \$800.36$

21. D
$15 \text{ seconds} \times 24 \text{ hours in day} = 360$
$360 \div 60 \text{ seconds in a minute} = 6 \text{ minutes}$

22. C
$\frac{90 + 76 + ?}{3} = 86$
$86 \times 3 = 166 + ?$
$258 = 166 + ?$
$258 - 166 = 92$
You could also do this problem by trial and error.

23. B $\$3408 \div \$32 = 106.5$ Since you cannot purchase part of a ticket the answer is 106 tickets.

24. A For this problem you must work out each situation. Remember you are looking for the statement that is **NOT** true.
$\sqrt{.04} = .2$ not $.02$ since $.2 \times .2 = .04$ This would be the correct choice.

25. A First figure out the total number of balls in the bag.
1 *red*
3 *blue*
$2 \times 3 = 6$ *green*
10 *total*

next set up a ratio of blue to total which is "3 in 10"

26. C

$$\frac{150}{50} - 0.15$$
$$= \frac{150}{50} - \frac{15}{100}$$
$$= \frac{300}{100} - \frac{15}{100}$$
$$= \frac{285}{100}$$

which does not reduce to $\frac{135}{50}$

27. B

Area of a circle formula = pr^2 p given as 3.14 r is the radius

3.14×3.5^2

$3.14 \times 3.5 \times 3.5 = 38.465 cm^2$

28. A

$$96 \div \frac{3}{4}$$
$$\frac{96}{1} \times \frac{4}{3} = 128$$

29. A

Area of triangle formula = $\frac{1}{2} \times Base \times Height$

$$\frac{1}{2} \times 6m \times 5m = 15m^2$$

30. B

This is a compound fraction which really means $\frac{3}{10} \div \frac{1}{6}$

$$\frac{3}{10} \div \frac{1}{6}$$
$$\frac{3}{10} \times \frac{6}{1} = \frac{9}{5}$$