Expressions : Equations Study Guide

EEEOG PRAC

1. **What is the value of** $(0.3)^4$?

   A. 0.0081
   B. 0.081
   C. 8.1
   D. 81

$$\begin{array}{r} .3 \\ \times .3 \\ \hline .09 \end{array} \quad \begin{array}{r} .09 \\ \times .3 \\ \hline .027 \end{array} \quad \begin{array}{r} .027 \\ \times .3 \\ \hline .0081 \end{array}$$

2. **Which number is equivalent to** 8^3?

   A. 11
   B. 24
   C. 512

$$\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array} \qquad \begin{array}{r} 64 \\ \times 8 \\ \hline 512 \end{array}$$

3. **Which value is equivalent to** $6^2 + 4^2 + 2^4$?

   A. 28
   B. 68
   C. 96
   D. 144

$$6^2 + 4^2 + 2^4$$
$$36 + 16 + 16 = 68$$

4. **Which value of the expression** $\left(a - \frac{5}{4}\right)$ **will make the equation below true?**

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

   A. $\frac{9}{4}$
   B. $\frac{4}{5}$
   C. 0
   D. 1

   $a \times 1 = a$

   Substitute each answer choice in place of $\left(a - \frac{5}{4}\right)$ to find the one that equals a

5. **What is another way to write** $3 \times (4 + 5) = 27$?

   A. $(9 \div 3) + 5 = 27$
   B. $(3 \times 4) + (3 \times 5) = 27$
   C. $(9 \times 5) + (4 \times 3) = 27$
   D. $(3 + 5) + (4 + 5) = 27$

   Distributive property. Distribute the # outside the parentheses to both numbers inside by multiplication.

   $3 \times (4 + 5) = 27$
   $(3 \times 4) + (3 \times 5) = 27$

6. Which statement is true for all values of *y*?

   A. $36 \times y = y \div 36$
   B. $y + 14 = 14 + y$ → *commutative property of addition states that changing the order in an addition problem does not change the answer.*
   C. $25 \div y = y \div 25$
   D. $y - 16 = 16 - y$

7. At a movie theater, a customer can buy a bag of popcorn and a large soda for a special price. The expression below represents the total amount, in dollars, a customer will save if he buys *x* bags of popcorn and *x* large sodas at the special price.

   $4.50x + 5.50x - 7.50x$

   Which expression is equivalent to the one shown above?

   A. $6.50x$
   B. $3.50x$
   C. $2.50x$
   D. $1.50x$

   +4.50
   +5.50
   +10.00

   +10.00
   -7.50
   +2.50

8. Which of the following is equivalent to the expression $x + 3x + 5x$ for all values of *x*?

   A. $8x$
   B. $9x$
   C. $8x^3$
   D. $9x^3$

   Combine Like terms
   $1x + 3x + 5x = 9x$

9. Which expression is equivalent to $5(n - 9)$?

   A. $5n - 45$
   B. $5n + 45$
   C. $5n - 9$
   D. $5n + 9$

   Distributive Property
   $5(n - 9) = 5n - 45$

10. What is the value of *t* in $\frac{3}{5}t = 6$?

    A. $3\frac{3}{5}$
    B. $5\frac{2}{5}$
    C. 10
    D. 30

    one step equation

    To solve a one-step equation complete the inverse (opposite) operation. $\frac{3}{5}t$ means $\frac{3}{5}$ times t. The opposite of multiplying by $\frac{3}{5}$ is dividing by $\frac{3}{5}$. To get the answer divide 6 by $\frac{3}{5}$.

    $6 \div \frac{3}{5}$
    $\frac{6}{1} \times \frac{5}{3} = \frac{30}{3} = 10$

11. If $8x = 800$, what is the value of x?

A. 8

B. 10

C. 64

D. 100

(handwritten: $8x = 800 \rightarrow$ inverse operation is divison)

(handwritten: $800 \div 8 = 100$)

12. When Coach Orozco opened the badminton sets he purchased, he found he had less than 48 badminton racquets. Each badminton set had 4 racquets. In the inequality below, b represents the number of badminton sets he could have purchased.

$4b < 48$

Which could be the number of badminton sets Coach Orozco purchased?

A. 11

B. 12

C. 44

D. 47

(handwritten: 4b means multiply)

(handwritten: Which answer choice multiplied by 4 gives you less than 48 $4(11) < 48$ $44 < 48$ ✓)

13. Erica bought 3 DVDs and 2 video games at a store. If d represents the cost of each DVD and v represents the cost of each video game, which expression represents the total cost of Erica's purchase before sales tax?

A. $5dv$

B. $2d + 3v$

C. $3d + 2v$

D. $(3 + 2)(d + v)$

(handwritten: $3d + 2v$)

14. The cafeteria has 16 tables and each table has 6 chairs. Which equation can be used to show how many students can sit and eat lunch at the same time?

A. $16 - 6 = c$

B. $16 \div 6 = c$

C. $16 \times 6 = c$

D. $16 + 6 = c$

(handwritten: 16 tables $\times$ 6 chairs at each =)

15. Mason owns 5 times as many CDs as Bryan. If Bryan owns 14 CDs, which equation can be used to find the number of CDs that Mason owns?

A. $m = 14 + 5$

B. $m = 14 - 5$

C. $m = 14 \times 5$

D. $m = 14 \div 5$

(handwritten: Mason owns 5 times what Bryan has)

(handwritten: Bryan has 14)

(handwritten: So Mason = 14 x 5)

16. Terrence has 42 baseball cards. His sister has b baseball cards. Together they have 101 cards. Which of the following equations could Terrence use to determine how many baseball cards his sister has?

A. $101 + 42 = b$

B. $b - 101 = 42$

C. $42 - b = 101$

D. $42 + b = 101$

Terrence → *sister*

inverse of multiplication is Division
$$\frac{50}{.25} = 200$$

17. The deli server put 0.25 pound (lb) of meat on each sandwich. She used the equation $0.25s = 50$ to determine the number of sandwiches (s) she could make with 50 pounds of meat. What is the value of s in her equation?

A. 25

B. 75

C. 200

D. 525

equation $0.25s = 50$

One step equation
Do the inverse operation
to get the answer

18. If $3x = 9$, what is x?

A. 3

B. 6

C. 12

D. 27

$3x = 9$ inverse of multiplication is division
$$\frac{9}{3} = 3$$

19. A water park has a rule that a person must be at least 48 inches in height, h, to go on a certain water slide. Which inequality represents this rule?

A. $h > 48$

B. $h < 48$

C. $h \geq 48$

D. $h \leq 48$

$h \geq 48$ height must be / greater than or equal to

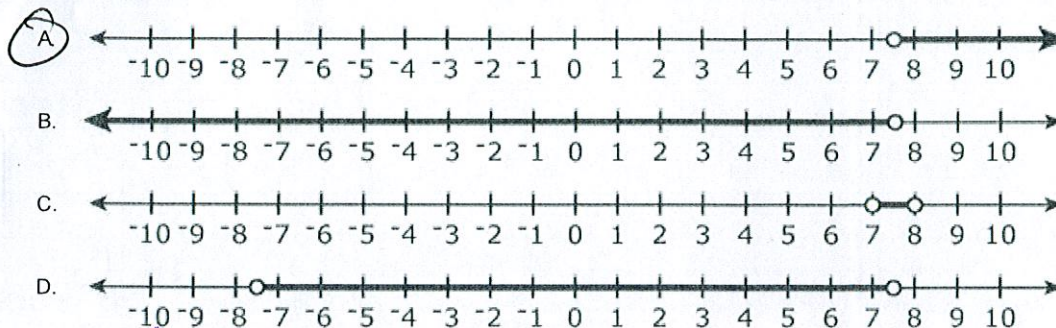20. Which value of x makes the inequality true?

$4x > 1.2$

A. $x = -0.5$

B. $x = -0.3$

C. $x = 0.3$

D. $x = 0.5$

$4x$ → means multiplication

This is an inequality the answer needs to be greater than 0.3 so 0.5 will work

the inverse of multiplication is division. Instead of multiplying by 4 we will divide by 4.

$$\frac{1.2}{4} = 0.3$$

21. Which graph represents the solution set for the inequality $7.5 < x$?

A.
| | | | | | | | | | | | | | | | | | | | | |
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

B.
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

C.
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

D.
-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

(handwritten A circled)

(handwritten right margin: When the variable is 2nd in the equation flip it before graphing. $7.5 < x =$ $x > 7.5$ to the right of 7.5 should be shaded)

(handwritten below options: Which means you also have to flip the sign.)

22. Jim has a roll of 20 quarters. He uses 5 quarters to buy a snack from a vending machine. He uses 4 more quarters to buy a drink from another machine. Which equation can be used to figure out how many quarters (Q) Jim has left?

A $Q = 20 - 5 \div 4$

B $Q = 20 - 5 - 4$

C $Q = 20 + 5 - 4$

D $Q = 20 + 5 + 4$

(handwritten B circled)

(handwritten: subtract — Quarters used for drink)

(handwritten: $Q = 20 - 5 - 4$ — What Jim started with — Quarters used for snack)

23. Which problem situation could be used to solve the open sentence below?

$$\frac{p}{12} = ?$$

A   Darell has $12.00 more than Blanca. If Blanca has p dollars, how much does Darell have?

B   Deena earns $12.00 each time she cleans the garage. If p is the total amount of money that she earned last year by cleaning the garage, how many times did she clean the garage?

C   Amiee earns $12.00 on each box of paper she sells. If p is the number of boxes of paper that she sold, how much did she earn in all?

D   Tanisha had $12.00. She spent p dollars on a notebook. How much money does Tanisha have left?

(handwritten B circled)

(handwritten: $p+12$, $\frac{p}{12}$, $12p$, $12-p$)

24. The table below shows Abigail's total savings, y, based on the number of months she has been saving, x.

Abigail's Savings

Month (x)	Total Savings (y)
1	$225
2	$450
3	$675
4	$900

Which equation would determine Abigail's total savings after x weeks?

A $y = 450x$

B $y = 225x$

C. $y = x + 225$

D. $y = 2x + 450$