

Review for the first exam

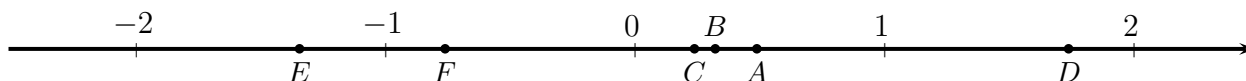
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Disclaimer The following is a set of questions to help you review what we have covered in class. If you know how to answer these questions then you should do well in the exam. However there is no guarantee that the questions in the actual exam will be perceived to be similar to these questions.

1. Put the following fractions in order from smallest to largest:

$$\frac{2}{3}, \frac{5}{7}, \frac{13}{21}$$

2. Indicate which point in the number line below corresponds to which number.



- Point ____ corresponds to $-\frac{4}{3}$
 - Point ____ corresponds to $\frac{1}{2}$
 - Point ____ corresponds to $\frac{1}{3}$
 - Point ____ corresponds to $\frac{1}{4}$
 - Point ____ corresponds to $\frac{3}{2}$
 - Point ____ corresponds to $-\frac{3}{4}$
3. Evaluate: $7 - 3(2 - 7) - 3^3 \div 9 \cdot 3$
4. Evaluate: $\frac{-25}{16} \cdot \frac{20}{-9} \cdot \left(-\frac{54}{11}\right) \cdot \frac{6}{-7} \cdot \frac{77}{50}$
5. Evaluate: $-4^2 + 4(-6 + 10)$
6. Evaluate:

$$1 + \frac{3}{2}$$
$$\frac{3}{10} - \frac{4}{5}$$

7. Evaluate: $\frac{3}{5} - \frac{7}{10}$
8. Evaluate: $3 - |-25 - 2 \cdot (7 - 14)|$
9. Evaluate, if $a = -\frac{3}{4}$, $b = \frac{7}{8}$ and $c = -\frac{1}{12}$: $-6a + 10b - 7c$
10. Evaluate if $x = -7$ and $y = -5$: $y^2 - x^2$.
11. Evaluate if $a = 3$, $b = -2$, $c = 7$, $d = 2$, and $x = -1$: $\frac{ax + b}{cx + d}$
12. Evaluate if $x = 3$: $x^3 - 4x^2 + x + 6$
13. Evaluate $3 - 2x - 3(x - 1)$, when $x = \frac{2}{3}$.
14. Evaluate $4x^2 + 4x + 1$, when $x = -\frac{1}{2}$.
15. Evaluate each of the following expressions:
- $-3^2 - 4(-2 - 3 \cdot 2)$
 - $-10 - (30 \div 15 \cdot 2 - 14)$
 - $\frac{4 \cdot 5 + 3(5 - 7)^2 - 2^2}{-3^2 + 5(7 - 8)}$
16. Evaluate the expression $x^2 + 2xy + y^2$, when $x = -2$ and $y = -3$.
17. Evaluate $-2x^2 + 3x + 4$, when:
- $x = 0$
 - $x = 1$
 - $x = -1$
 - $x = -2$
 - $x = 3$
 - $x = \frac{3}{2}$
 - $x = -\frac{2}{3}$
18. Evaluate $\frac{y_2 - y_1}{x_2 - x_1}$, when
- $x_1 = -1$, $x_2 = 1$, $y_1 = -5$, $y_2 = 5$
 - $x_1 = -2$, $x_2 = 3$, $y_1 = -3$, $y_2 = 4$
 - $x_1 = 2$, $x_2 = 4$, $y_1 = 1$, $y_2 = 2$

- (d) $x_1 = -2, x_2 = -3, y_1 = -4, y_2 = -6$
 (e) $x_1 = 0, x_2 = 3, y_1 = 5, y_2 = 0$

19. Evaluate the expression $\sqrt{b^2 - 4ac}$, when:

- (a) $a = -2, b = -1, c = 3$
 (b) $a = -3, b = 5, c = -2$
 (c) $a = 15, b = -3, c = 2$
 (d) $a = 15, b = 7, c = -2$
 (e) $a = 6, b = 5, c = \frac{2}{3}$

20. Evaluate the expression $-a^2 + 3a$, when $a = 2$.

- A. 10 B. 2 C. -10 D. -2

21. Evaluate the expression

$$\frac{5 - x^2}{3x + 4}$$

when $x = -3$.

- A. $\frac{14}{9}$ B. $-\frac{14}{9}$ C. $\frac{4}{5}$ D. $-\frac{4}{5}$

22. Given $a = 2$ and $b = -2$, evaluate the expression given below.

$$a^2b + ba + b^2$$

- A. 16 B. -16 C. 8 D. -8

23. If x represents an unknown number then seven subtracted from twice that number is represented by the expression: A. $2(x - 7)$ B. $2(7 - x)$ C. $7 - 2x$ D. $2x - 7$

24. Write a mathematical expression that represents the following phrase:

- (a) n more than 19.
 (b) x less than 27.
 (c) 16 less than twice a number.
 (d) 9 divided by the sum of a number and eleven.
 (e) The difference of eleven times a number and five times its square.
 (f) Six subtracted from three times the sum of twice a number and its cube.

25. If y represents an unknown number, which expression is a correct translation of the phrase:

The sum of six times a number and five, divided by eight less than the same number.

- A. $\frac{30x}{x - 8}$ B. $\frac{6x + 5}{8 - x}$ C. $\frac{6x + 5}{x} - 8$ D. $6x + \frac{5}{8 - x}$ E. $\frac{6x + 5}{x - 8}$

26. If n represents a number, which mathematical statement is a correct translation of the sentence:

41 subtracted from 7 times a number is 6

- A. $41 - 7n = 6$
B. $7(41 - n) = 6$
C. $7n - 41 = 6$
D. $7(n - 41) = 6$
27. Given $x = 3$ and $y = -5$ evaluate each or the following three expressions:
A. $(x + y)^2$ B. $x^2 + y^2$ C. $x^2 + 2xy + y^2$

Which of these three values are equal?

- Only A and B
 Only A and C
 Only B and C
 They are all equal.
 They are all different.

For the following statements indicate whether they are true or false:

28. If $x = -\frac{1}{2}$ and $y = \frac{3}{4}$, then $2x + 8y = -5$
A. True B. False.
29. If $x = 3$ and $y = -2$, then $x^2 + 2y = y^2 - x + 4$
A. True B. False.
30. If $x = -2$ then $-x^2 - 2x = 0$
A. True B. False.