
1. $8 - [8(-5 + 4) - 4] =$

- (A) 20 (B) 12 (C) 4 (D) -4 (E) -32
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2. If $0.02x = 10$ then $x =$

- (A) 500 (B) 20 (C) 9.98 (D) 5 (E) .20
-

3. $5p + 3(p - q) - q =$

- (A) $2(4p - 3q)$ (B) $4(2p - q)$ (C) $2(4p - q)$ (D) $2(4p + q)$ (E) $8p$
-

4. $\sqrt{98p^4q^{12}} =$

- (A) $7p^2q^6$ (B) $49p^2q^6$ (C) $49p^4q^{12}$ (D) $7p^2q^6\sqrt{2}$ (E) $7p^2q^{10}\sqrt{2}$
-

5. $\frac{3}{3 + \frac{1}{4}} =$

- (A) $\frac{4}{5}$ (B) $\frac{12}{13}$ (C) $\frac{5}{4}$ (D) 3 (E) 4
-

6. $3a - 6(a - 3) + 5(b - 3) =$

- (A) $-6a + 5b$ (B) $-6a + 5b + 3$ (C) $-3a + 5b + 3$ (D) $-3a + 5b - 6$
(E) $-3a + 5b - 33$
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7. $(5r^4s)(-7r^2s^5) =$
(A) $-35r^6s^6$ (B) $-35r^8s^5$ (C) $-2r^2s^{-4}$ (D) $-2r^8s^5$ (E) $35r^6s^5$

8. The graph of the equation $x - 3y + 6 = 0$ crosses the y -axis at $y =$
(A) -6 (B) -2 (C) 0 (D) 2 (E) 6

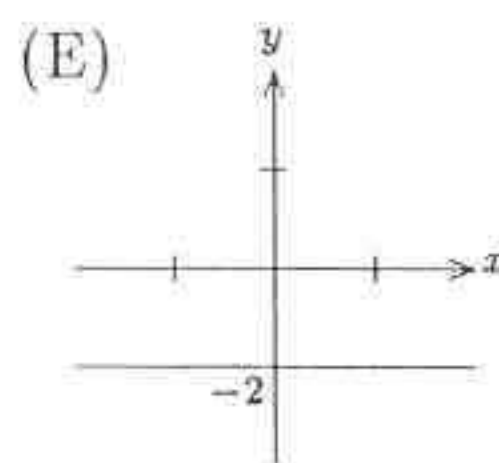
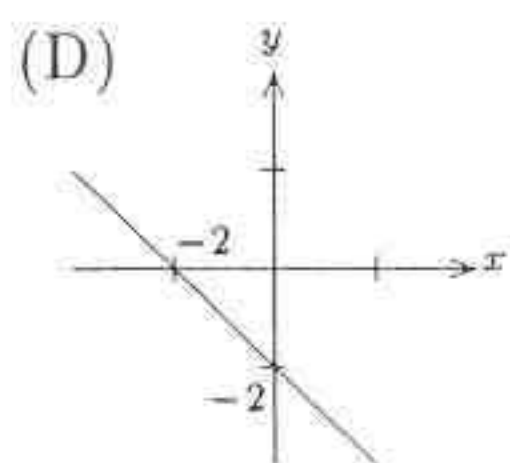
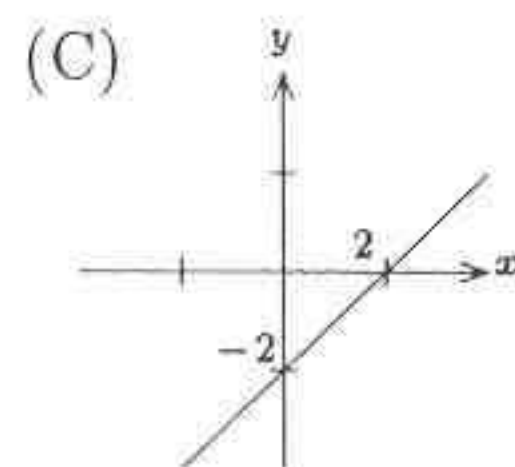
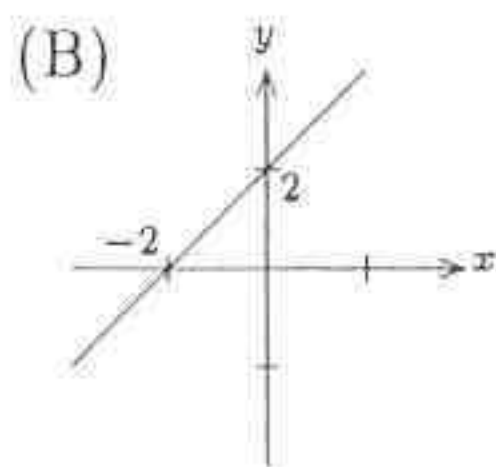
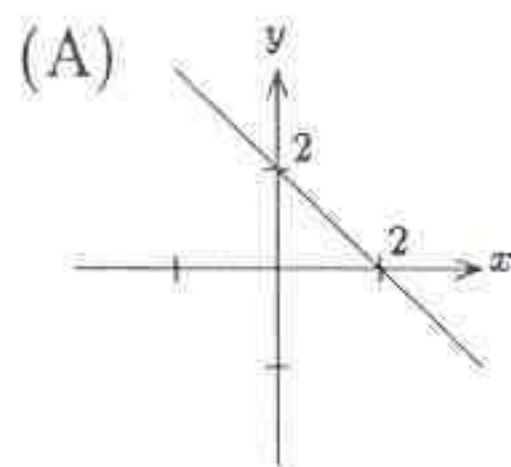
9. The length L of a spring is given by $L = \frac{3}{5}F + 16$, where F is the applied force. What force F will produce a length L of 37?
(A) $\frac{265}{3}$ (B) $\frac{233}{3}$ (C) $\frac{169}{3}$ (D) $\frac{191}{5}$ (E) 35

10. $\frac{10r^3s - 5rs^3}{5rs} =$
(A) 1 (B) r^2s^2 (C) $2r^2 - s^2$ (D) $2r^2 - 5rs^3$ (E) $10r^3s - s^2$

11. If $\frac{1}{x-3} + 5 = \frac{x}{x-3}$ then $x =$
(A) 6 (B) $\frac{7}{2}$ (C) $\frac{1}{2}$ (D) $\frac{1}{3}$ (E) $-\frac{1}{2}$

12. $\frac{6}{\sqrt{15}} =$
(A) $\frac{2\sqrt{15}}{5}$ (B) $\frac{\sqrt{5}}{2}$ (C) $\frac{2}{\sqrt{5}}$ (D) $\frac{\sqrt{15}}{6}$ (E) $\sqrt{\frac{2}{5}}$

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13. Of the following, which best represents the graph of $x + y = -2$?



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14. $3^0 4^2 =$
- (A) 144 (B) 24 (C) 16 (D) 8 (E) 0

-
15. $\frac{x^2 - 16}{2x} \cdot \frac{6}{3x - 12} =$
- (A) $\frac{4}{3}$ (B) 4 (C) $x + 4$ (D) $\frac{x - 4}{x}$ (E) $\frac{x + 4}{x}$

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16. What are all the values of t for which $|-t| = 8$?
- (A) 8 (B) -8 (C) 8 and -8 (D) 8, 0, and -8
- (E) No such t exists.
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17. The inequality $2x - 7 < x + 8$ is equivalent to
- (A) $x < 30$ (B) $x < 15$ (C) $x < \frac{15}{2}$ (D) $x < \frac{7}{2}$ (E) $x < -1$
-
18. The solutions of the equation $5x^2 + x - 6 = 0$ are
- (A) -1 and $-\frac{6}{5}$ (B) -1 and $\frac{6}{5}$ (C) 1 and -6 (D) 1 and $-\frac{6}{5}$
(E) 1 and $\frac{6}{5}$
-
19. If $x = \frac{5}{8}$ then $x^{-2} =$
- (A) $\frac{64}{25}$ (B) $\frac{16}{10}$ (C) $-\frac{25}{64}$ (D) $-\frac{10}{16}$ (E) $-\frac{64}{25}$
-
20. If $\log_{10} s = 3$ then $s =$
- (A) 1,000 (B) 100 (C) 10 (D) $\frac{3}{10}$ (E) $\frac{1}{1,000}$
-
21. The inequality $x^2 - 21x < 22$ is equivalent to
- (A) $-2 < x < 11$ (B) $-1 < x < 22$ (C) $2 < x < 11$ (D) $x < -1$ or $x > 22$
(E) $x < 2$ or $x > 11$
-
22. The inequality $|6 - w| < 6$ is equivalent to
- (A) $w < 0$ (B) $w < 12$ (C) $0 < w < 12$ (D) $w > 0$ (E) $w > 12$
-

23. $\frac{6}{x} - \frac{7}{w} =$

- (A) $\frac{-1}{x-w}$ (B) $\frac{-1}{x+w}$ (C) $\frac{-1}{xw}$ (D) $\frac{6w-7x}{xw}$ (E) $\frac{6x-7w}{xw}$
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24. Which of the following are factors of $t^4 - 256$?

- I. $t - 4$ II. $t + 4$ III. $t^2 + 16$

- (A) I only (B) II only (C) III only (D) I and II only
(E) I, II, and III
-

25. $\frac{h}{6k} + \frac{h}{5k} =$

- (A) $11hk$ (B) $30hk$ (C) $\frac{2h}{11k}$ (D) $\frac{11h}{30k}$ (E) $\frac{11h}{30k^2}$
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26. The graph of the system of equations $\begin{cases} x - 3y = 6 \\ 4x + 12y = 0 \end{cases}$ consists of

- (A) two lines which intersect at the point $(3, -1)$.
(B) two lines which intersect at the point $(1, -\frac{5}{3})$.
(C) two lines which intersect at the point $(-\frac{5}{3}, 1)$.
(D) two distinct parallel lines.
(E) one line.
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27. If $f(x) = \frac{7-x}{x+7}$ then $f(3) =$

- (A) -4 (B) $-\frac{2}{5}$ (C) $\frac{2}{5}$ (D) $\frac{4}{7}$ (E) 4
-

28. If $f(x) = x^4 + 8$ then $f(x-h) =$

- (A) $x^4 - h^4 + 8$ (B) $(x-h)^4 + 8$ (C) $(x-h+8)^4$ (D) $x^4 + 8 - h$
(E) $(x^4 + 8) - (h^4 + 8)$
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29. $(8)^{2/3} (16)^{1/4} =$

- (A) 2 (B) 4 (C) 8 (D) 16 (E) 32
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30. In the system of equations $\begin{cases} 3x + 4y = 4 \\ x - 2y = 7 \end{cases}$

- (A) $x = \frac{18}{5}$ (B) $x = \frac{11}{5}$ (C) $x = \frac{4}{3}$ (D) $x = 0$ (E) $x = -\frac{17}{10}$
-

31. One of the solutions of the equation $x^2 + 6x = -10$ is

- (A) -16 (B) -10 (C) 3 (D) i (E) $-3 - i$
-

32. If $7^x = 9$ then $x =$

- (A) $\frac{9}{7}$ (B) $\frac{7}{9}$ (C) $\log_7 9$ (D) $\log_9 7$ (E) $\log_{10} \left(\frac{9}{7}\right)$
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