

Review for College Algebra Placement Exam

1. If $x = \frac{1}{4}$ then $x + \frac{1}{x} - 3 =$

- a) $\frac{-11}{4}$ b) -2 c) $\frac{1}{4}$ d) $\frac{5}{4}$ e) $\frac{17}{4}$
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2. If $y > 0$, then $\sqrt{169y^2 - 25y^2} =$

- a) y b) $8y$ c) $12y$ d) $13y$ e) $144y$
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3. $\frac{s}{5t} + \frac{s}{3t} =$ a) $15st$ b) $\frac{8s}{15t}$ c) $\frac{2s}{8t}$ d) $8st$ e) $\frac{8s}{15t^2}$

4. If $\frac{x}{3} + 1 = \frac{7}{4}$ then $x =$

- a) $\frac{9}{16}$ b) $\frac{9}{4}$ c) $\frac{17}{4}$ d) $\frac{21}{4}$ e) $\frac{33}{4}$
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5. $(64)^{2/3}(16)^{3/4} =$

- a) 16 b) 128 c) 512 d) 4 e) 144
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6. Let $f(y) = y^2 - ky - 5$. If $f(2) = 7$, then $k =$

- a) -4 b) -3 c) 2 d) 4 e) 7
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7. $\frac{x+3}{x^2-16} \cdot \frac{16x+64}{4x+12} =$

- a) $\frac{4}{x+4}$ b) $\frac{4}{x-4}$ c) $\frac{1}{x}$ d) $\frac{20}{x-16}$ e) $\frac{4}{x}$
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8. If $\log_{10}t = 5$ then $t =$

- a) $100,000$ b) $10,000$ c) $\frac{1}{100,000}$ d) 10 e) $\frac{5}{10}$

9. $\log_4(64) =$

- a) 3 b) 16 c) $\frac{1}{3}$ d) 8 e) $\frac{1}{2}$
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10. If $x > 5$, then $|5-x| =$

- a) 0 b) $5-x$ c) $5+x$ d) $-5-x$ e) $-5+x$
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11. If $p \neq q$ and $p(x+q) = qx-s$, then $x =$

- a) $\frac{pq+s}{q-p}$ b) $\frac{pq+s}{q+p}$ c) $\frac{q+s}{q-p}$ d) $\frac{q-s}{q-p}$ e) $\frac{q+s}{q+p}$
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12. $\frac{1}{1+\sqrt{3}} =$

- a) $\frac{1-\sqrt{3}}{2}$ b) $\frac{\sqrt{3}-1}{4}$ c) $\frac{\sqrt{3}-1}{2}$ d) $\frac{1+\sqrt{3}}{-2}$ e) $\frac{1+\sqrt{3}}{10}$
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13. A solution of $x^2 + 2x = -10$ is

- a) -12 b) -10 c) $-1-3i$ d) 1 e) $3i$
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14. $\frac{x^3-27}{x-3} =$

- a) x^2-3x+9 b) x^2-9 c) x^2-24 d) x^2-6x+9 e) x^2+3x+9
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15. If $3^x=2$ then $x =$

- a) $\frac{2}{3}$ b) $\frac{3}{2}$ c) $\log_2(3)$ d) $\log_3(2)$ e) $\log_{10}(\frac{2}{3})$
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16. $x^2 - 13x < 14$ is equivalent to

- a) $-2 < x < 7$ b) $2 < x < 7$ c) $x < 2$ or $x > 7$ d) $-1 < x < 14$ e) $x < -1$ or $x > 14$

17. If $f(x) = x^2 + 4$ and $g(x) = 5x - 1$, then $f(g(3)) =$

- a) 13 b) 18 c) 64 d) 182 e) 200
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18. If $x > 0$ and $y > 0$ then $\sqrt{27\sqrt{81x^3y^6}} =$

- a) $27x^2y\sqrt{y}$ b) $27x^2y\sqrt{3y}$ c) $9x^2y\sqrt{3y}$ d) $27x^2y\sqrt{3}$ e) $9x^4y^3$
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19. Which of the following are factors of $x^4 - 256$?

- I. $(x - 4)$ II. $(x + 4)$ III. $(x^2 + 16)$

- a) I only b) II only c) III only d) I and II only e) I, II, and III
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20. The graphs of the system of equations $\begin{cases} x + 3y = 1 \\ 2x - 6y = 2 \end{cases}$ consist of

- a) two distinct parallel lines
b) one line
c) two lines intersecting where $y = 1$
d) two lines intersecting where $x = 1$
e) two lines intersecting where $x = 2$
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21. The solution set for $x - 5 - \sqrt{16x} = 0$ consists of

- a) exactly one positive number
b) exactly one negative number
c) exactly one positive number and one negative number
d) exactly two positive numbers
e) exactly two negative numbers
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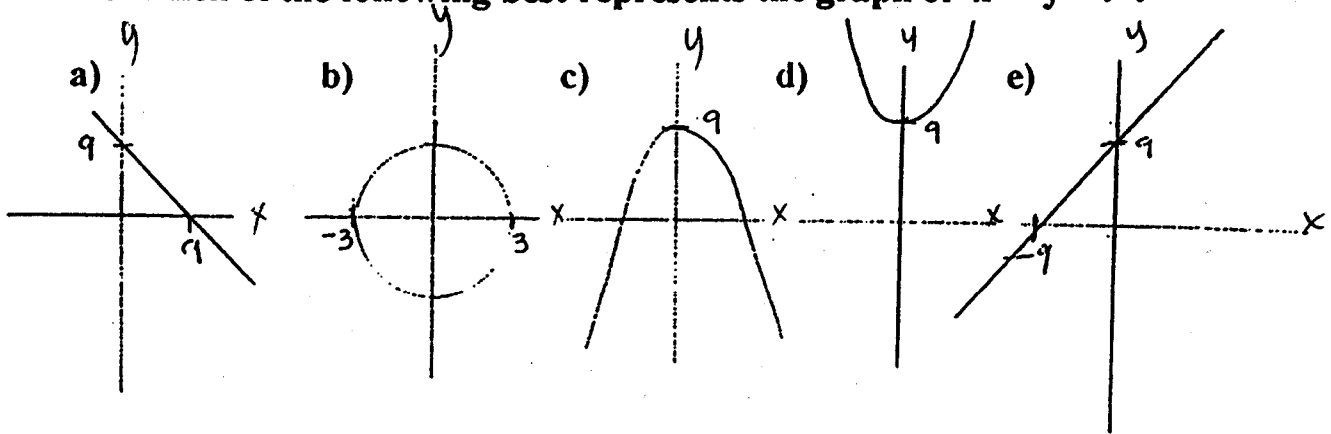
22. If $(x + k)^2 = k^2 + 2x + x^2$ then $k =$

- a) -2 b) -1 c) 0 d) 1 e) 2
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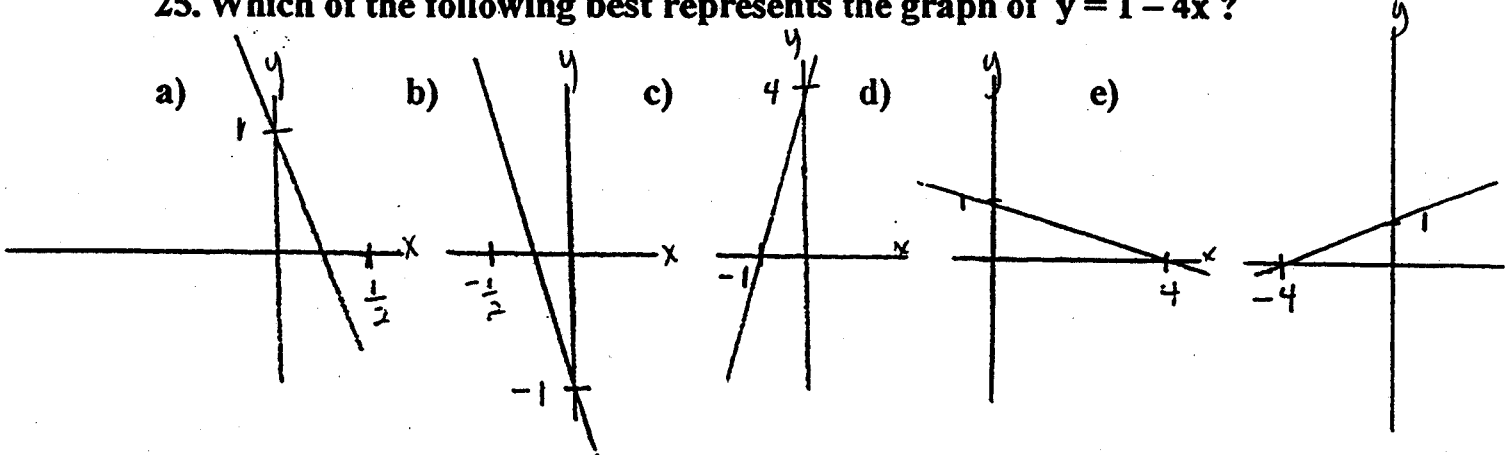
23. The distance between the points $(3, -4)$ and $(-2, 6)$ is

- a) 15 b) $\sqrt{5}$ c) $\sqrt{125}$ d) $\sqrt{29}$ e) $\sqrt{75}$

24. Which of the following best represents the graph of $x^2 + y = 9$?

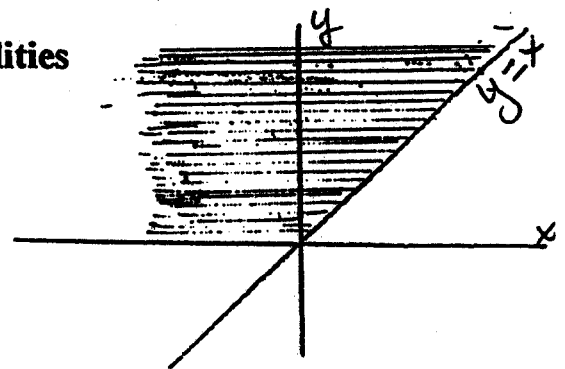


25. Which of the following best represents the graph of $y = 1 - 4x$?



26. The shaded region is described by the inequalities

- a) $x \geq y$ and $y \geq 0$
- b) $x \leq y$ and $y \geq 0$
- c) $x \geq y$ and $y \leq 0$
- d) $x \leq y$ and $y \leq 0$
- e) $x \leq y$ and $x \leq 0$



Answer Key:

1. d 2. c 3. b 4. b 5. b 6. a 7. b 8. a 9. a 10. e 11. a 12. c

13. c 14. e 15. d 16. d 17. e 18. c 19. e 20. d 21. a 22. d 23. c 24. c

25. a 26. b