

Name hey

Date _____ Period _____

- D 1. Find the vertex of the parabola: $x = 2(y - 3)^2 + 4$
 $\uparrow k$ $\uparrow h$
 A. (3, 4) B. (-3, 4) C. (4, -3) D. (4, 3)

(4, 3)

- B 2. Solve $3^{2x} = 8$
 A. 0.61 B. 0.95 C. 1.38 D. 0.26

$3^{2x} = 8$ $\log_3 8 = 2x$ $\frac{\log 8}{\log 3} = 2x$ *Need calc.

- D 3. Solve $\log_2 32 = x$
 A. 16 B. $4\sqrt{2}$ C. 4 D. 5

$2^x = 32$
 ~~$2^x = 2^5$~~ $x = 5$

- B 4. Evaluate $\log_9 \frac{1}{81}$
 A. 2 B. -2 C. $\frac{1}{2}$ D. $-\frac{1}{2}$

$9^x = \frac{1}{81}$ $9^x = 81^{-1}$
 $9^x = 9^{-2}$ $x = -2$

- C 5. Solve for x: $\log_5 3 - \frac{1}{2} \log_5 x = \log_5 \frac{1}{2}$
 A. $-\frac{1}{36}$ B. $\frac{1}{36}$ C. 36 D. -36

$\log_5 3 - \log_5 x^{\frac{1}{2}} = \log_5 \frac{1}{2}$ ~~$\frac{3}{x} = \frac{1}{2}(\sqrt{x})$~~ $(\sqrt{x})^2 = (\sqrt{x})^2$
 ~~$\log_5 \frac{3}{\sqrt{x}} = \log_5 \frac{1}{2}$~~ ~~$(\sqrt{x})^2 = (\sqrt{x})^2$~~ $36 = x$

- A 6. What is the y-intercept of the graph of $y = 2(x - 1)^2 + 3$
 A. 5 B. 3 C. 2 D. 1

$x = 0$
 $y = 2(0 - 1)^2 + 3$
 $y = 2(1) + 3$
 $y = 5$

A 7. If $p(x) = x^5 - 2x^4 + 3x^2 - 1$, find $p(2)$

$$\begin{array}{r|rrrrrr} 1 & 1 & -2 & 0 & 3 & 0 & -1 \\ & \downarrow & & & & & \\ 2 & & 2 & 0 & 0 & 6 & 12 \\ \hline & 1 & 0 & 0 & 3 & 6 & 11 \end{array}$$

- A. 11 B. 5 C. -23 D. 6

For problems 12 - 13, use $P(-4, 3)$ and $Q(-6, -1)$
 $\begin{matrix} x_1 & y_1 & & x_2 & y_2 \end{matrix}$

D 8. Find the distance from P to Q

- A. 12 B. 6 C. $2\sqrt{26}$ D. $2\sqrt{5}$

$$\begin{aligned} d &= \sqrt{(-6+4)^2 + (-1-3)^2} \\ &= \sqrt{(4)^2 + (16)} = \sqrt{20} = 2\sqrt{5} \end{aligned}$$

B 9. Find the midpoint of \overline{PQ}

- A. (5, 1) B. (-5, 1) C. (-1, 1) D. (-5, -1)

$$\begin{aligned} x_m &= \frac{-4-6}{2} & y_m &= \frac{3-1}{2} \\ &= -5 & &= 1 \end{aligned}$$

$$(-5, 1)$$

Answers:

1. D 2. B 3. D 4. B 5. C 6. A 7. A
 8. D 9. B

Name _____

Date _____ Period _____

Simplify completely.

1. $(4x^2 - 6x + 3) - (12x^2 - 12x - 5)$

$$\begin{aligned} & \cancel{4x^2} - \cancel{6x} + 3 - \cancel{12x^2} + \cancel{12x} + 5 \\ & -8x^2 + 6x + 8 \end{aligned}$$

2. $(3x^3y^2)(9x^5y^6)$

$$27x^8y^8$$

3. 9^0

$$1$$

4. $\frac{25k^5a^4}{80ka^{11}}$

$$\frac{5k^4}{8a^7}$$

5. $(2c^5d)^4$

$$\begin{aligned} & 2^4 c^{20} d^4 \\ & 16c^{20}d^4 \end{aligned}$$

6. 4^{-2}

$$\frac{1}{16}$$

7. $(-3y^4z)^2(2y^2z^2)^3$

$$\begin{aligned} & (9y^8z^2)(8y^6z^6) \\ & 72y^{14}z^8 \end{aligned}$$

8. $\frac{(18c^4y^3)^2}{180c^{10}y^{10}}$

$$\begin{aligned} & \frac{18 \cdot 324 c^8 y^6}{10 \cdot 180 c^{10} y^{10}} \\ & \frac{9 \cdot 18}{5 \cdot 10 c^2 y^4} = \frac{9}{5c^2y^4} \end{aligned}$$

9. $\frac{20k^{-6}z^4}{30k^{-4}z^{-3}}$

$$\begin{aligned} & \frac{2k^4z^7}{3k^6} \\ & \frac{2z^7}{3k^2} \end{aligned}$$

10. $\left(\frac{24a^{-3}c^5d^{-6}}{36a^{-5}c^4d^{-2}}\right)^{-2}$

$$\begin{aligned} & \left(\frac{2a^2c}{3d^4}\right)^{-2} \\ & \left(\frac{3d^4}{2a^2c}\right)^2 = \frac{9d^8}{4a^4c^2} \end{aligned}$$

11. $\sqrt{50x^{10}k^7}$

$$5x^5k^3\sqrt{2k}$$

Algebra 2B
Final Exam Review 7

12. $\sqrt[3]{72a^{11}y^{15}}$

72
9 8
3 5 2 4
2 2

$2a^3y^5\sqrt[3]{9a^2}$

13. $5\sqrt{12} + 3\sqrt{27}$

$5 \cdot 2\sqrt{3} + 3 \cdot 3\sqrt{3}$

$10\sqrt{3} + 9\sqrt{3}$

$19\sqrt{3}$

14. i^{21}

$i^{20} \cdot i$

$1 \cdot i$
 i

15. $(12i^5)(3i^{10})$

$36i^{15}$

$36(i^{12} \cdot i^3)$

$36 \cdot 1 \cdot -i$

$-36i$

16. $\sqrt{-30} \cdot \sqrt{-42}$

5 6 7 6
2 3 3 2

$i\sqrt{30} \cdot i\sqrt{42}$

$i^2 \sqrt{5 \cdot 2 \cdot 3 \cdot 7 \cdot 3 \cdot 2}$

$-1 \cdot 2 \cdot 3 \sqrt{35}$

$-6\sqrt{35}$

17. $\frac{40}{\sqrt{20}}$

$\frac{40 \cdot \sqrt{3}}{2\sqrt{3} \cdot \sqrt{3}}$

$\frac{40\sqrt{3}}{2 \cdot 3}$

$\frac{40\sqrt{3}}{6} = 4\sqrt{3}$

18. $\frac{20}{10i}$

$\frac{2}{i} \cdot \frac{i}{i}$

$\frac{2i}{i^2}$

$-2i$

19. $\frac{10}{3-\sqrt{5}} \cdot \frac{3+\sqrt{5}}{3+\sqrt{5}}$

$\frac{10(3+\sqrt{5})}{9+3\sqrt{5}-3\sqrt{5}-5}$

$\frac{30+10\sqrt{5}}{4}$

$\frac{2(15+5\sqrt{5})}{4}$

$\frac{15+5\sqrt{5}}{2}$

20. $\frac{15}{4i+2} \cdot \frac{4i-2}{4i-2}$

$\frac{15(4i-2)}{16i^2 - 8i + 8i - 4}$

$\frac{60i-30}{-16-4}$

-20

$\frac{60i-30}{-20}$

$\frac{6i-3}{-2} = \frac{3-6i}{2}$

Answers:

1. $-8x^2 + 6x + 8$

2. $27x^8y^8$

3. 1

4. $\frac{5k^4}{8a^7}$

5. $16c^{20}d^4$

6. $\frac{1}{16}$

7. $72y^{14}z^8$

8. $\frac{9}{5c^2y^4}$

9. $\frac{2z^7}{3k^2}$

10. $\frac{9d^8}{4a^4c^2}$

11. $5x^5k^3\sqrt{2k}$

12. $2a^3y^5\sqrt[3]{9a^2}$

13. $19\sqrt{3}$

14. i

15. $-36i$

16. $-6\sqrt{35}$

17. $4\sqrt{5}$

18. $-2i$

19. $\frac{15+5\sqrt{5}}{2}$

20. $\frac{3-6i}{2}$

#1 Simplify: $4\sqrt{578} \cdot \sqrt{34}$

- A. $16\sqrt{4913}$
- B. $272\sqrt{17}$
- C. $136\sqrt{17}$
- D. $68\sqrt{2}$

$$\begin{array}{r} 578 \\ 2 \overline{) 289} \\ \underline{17} \\ 17 \\ \underline{17} \\ 0 \end{array}$$

$$\begin{array}{r} 34 \\ 2 \overline{) 17} \\ \underline{17} \\ 0 \end{array}$$

$$\begin{array}{l} 4\sqrt{578} \cdot \sqrt{34} \\ 4 \cdot 17\sqrt{2} \cdot \sqrt{2} \cdot \sqrt{17} \\ 68\sqrt{2} \cdot \sqrt{2} \cdot \sqrt{17} \\ 68 \cdot \sqrt{2} \cdot \sqrt{2} \cdot \sqrt{17} \\ 68 \cdot 2\sqrt{17} \\ \boxed{136\sqrt{17}} \end{array}$$

#2 Solve for all x $11x^2 = 891$

- A. 9
- B. $\pm\sqrt{9801}$
- C. $\pm\sqrt{880}$
- D. ± 9

$$\begin{array}{l} 11x^2 = 891 \\ \sqrt{} \sqrt{81} \\ x = \pm 9 \end{array}$$

#3 Solve: $3x^2 + 7 = 34$

- A. $\pm 3\sqrt{2}$
- B. $\pm 2\sqrt{3}$
- C. ± 3
- D. ± 2

$$\begin{array}{r} 3x^2 + 7 = 34 \\ \underline{-7 \quad -7} \\ 3x^2 = 27 \end{array}$$

$$x^2 = 9$$

$$x = \pm 3$$

$$x = \pm 3$$

#4 Solve: $(\sqrt{x^2 + 5})^2 = (x+4)^2$

- A. $\frac{11}{8}$
- B. 2
- C. -11
- D. $-\frac{11}{8}$

$$x^2 + 5 = (x+4)(x+4)$$

$$\begin{array}{r} x^2 + 5 = x^2 + 8x + 16 \\ \underline{-x^2 \quad -x^2} \\ 5 = 8x + 16 \end{array}$$

$$\begin{array}{r} 5 = 8x + 16 \\ \underline{-5 \quad -5} \\ 0 = 8x + 11 \end{array}$$

$$0 = 8x + 11$$

$$\begin{array}{r} -11 = 8x \\ \underline{-8x} \\ -11 = 8x \end{array}$$

Answers:

1.) C 2.) D 3.) C 4.) D