

Name _____

Assessment #2

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Reduce the rational expression to lowest terms.

1) $\frac{4x^2 - 11x - 3}{2x^2 - 11x + 15}$ 1) _____

A) $\frac{x+2}{x-4}$

B) $\frac{4x+1}{2x-5}$

C) $\frac{4x-3}{2x+3}$

D) $\frac{x-1}{x+5}$

2) $\frac{7x^2 + 21x^3}{12x + 36x^2}$ 2) _____

A) $\frac{7x}{12}$

B) $\frac{7 + 21x^3}{12x + 36}$

C) $\frac{7x^2 + 21x^3}{12x + 36x^2}$

D) $\frac{7}{12}$

3) $\frac{y^3 - 64}{y - 4}$ 3) _____

A) $\frac{1}{y-4}$

B) $y^2 + 4y + 16$

C) $y^2 - 16$

D) $\frac{y^3 - 64}{y - 4}$

Perform the indicated operations and simplify the result. Leave the answer in factored form.

4) $\frac{2}{x} + \frac{7}{x-5}$ 4) _____

A) $\frac{10x-9}{x(5-x)}$

B) $\frac{9x-10}{x(5-x)}$

C) $\frac{9x-10}{x(x-5)}$

D) $\frac{10x-9}{x(x-5)}$

5) $\frac{4}{x+5} - \frac{6}{x-5}$ 5) _____

A) $\frac{-2x-50}{(x+5)(x-5)}$

B) $\frac{-2x+50}{(x+5)(x-5)}$

C) $\frac{-2x+10}{(x+5)(x-5)}$

D) $\frac{-2}{(x+5)(x-5)}$

6) $\frac{x-8}{x-4} - \frac{x-8}{x-7}$ 6) _____

A) 0

B) $\frac{-11(x-8)}{(x-4)(x-7)}$

C) $\frac{-3(x-8)}{(x-4)(x-7)}$

D) $\frac{3(x-8)}{(x-4)(x-7)}$

7) $\frac{9x^4 - 72x}{3x^2 - 12} \cdot \frac{x^2 + x - 2}{4x^3 + 8x^2 + 16x}$ 7) _____

A) $\frac{3x(x-1)}{4}$

B) $\frac{3x(x+1)}{4}$

C) $\frac{3x(x-1)(x-2)^2}{4(x+2)^2}$

D) $\frac{3(x-1)}{4}$

$$8) \frac{x^2 + 4x + 4}{x^2 + 6x + 8} \cdot \frac{x^2 + 4x}{x^2 + 9x + 14} \quad 8) \underline{\hspace{2cm}}$$

$$A) \frac{1}{x+7}$$

$$B) \frac{x}{x^2 + 6x + 8}$$

$$C) \frac{x}{x+7}$$

$$D) \frac{x^2 + 4x}{x+7}$$

$$9) \frac{10x^2 - 3x - 4}{5x^2 - x - 4} \cdot \frac{15x^2 + 12x}{1 - 4x^2} \quad 9) \underline{\hspace{2cm}}$$

$$A) \frac{3x(5x - 4)}{(1 - 2x)(x - 1)}$$

$$B) \frac{3x(5x + 4)}{(1 - 2x)(x - 1)}$$

$$C) \frac{3x}{(1 - 2x)(x - 1)}$$

$$D) \frac{(5x + 4)(5x - 4)}{(1 - 2x)(x - 1)}$$

Solve the equation.

$$10) 8x + 12 = 2x + 48 \quad 10) \underline{\hspace{2cm}}$$

$$A) \{-8\}$$

$$B) \{8\}$$

$$C) \{6\}$$

$$D) \{-6\}$$

$$11) -2x + 84 = 5x + 21 \quad 11) \underline{\hspace{2cm}}$$

$$A) \{12\}$$

$$B) \{-12\}$$

$$C) \{-9\}$$

$$D) \{9\}$$

$$12) -63 - 4x = 18 + 5x \quad 12) \underline{\hspace{2cm}}$$

$$A) \{9\}$$

$$B) \{7\}$$

$$C) \{-7\}$$

$$D) \{-9\}$$

Solve the equation by factoring.

$$13) x^2 - 5x - 36 = 0 \quad 13) \underline{\hspace{2cm}}$$

$$A) \{4, -9\}$$

$$B) \{4, 9\}$$

$$C) \{-4, -9\}$$

$$D) \{-4, 9\}$$

$$14) 2x^2 + 6x - 8 = 0 \quad 14) \underline{\hspace{2cm}}$$

$$A) \{1, 4\}$$

$$B) \{1, -4\}$$

$$C) \{-1, -4\}$$

$$D) \{-1, 4\}$$

Solve the equation by completing the square.

$$15) x^2 + 5x - 5 = 0 \quad 15) \underline{\hspace{2cm}}$$

$$A) \left\{ \frac{-5 - 3\sqrt{5}}{2} \right\}$$

$$B) \{-5 - 3\sqrt{5}, -5 + 3\sqrt{5}\}$$

$$C) \left\{ \frac{-5 - 3\sqrt{5}}{2}, \frac{-5 + 3\sqrt{5}}{2} \right\}$$

$$D) \left\{ \frac{5 + 3\sqrt{5}}{2} \right\}$$

$$16) x^2 + 8x - 5 = 0 \quad 16) \underline{\hspace{2cm}}$$

$$A) \{-4 - 2\sqrt{21}, -4 + 2\sqrt{21}\}$$

$$B) \{-1 - \sqrt{21}, -1 + \sqrt{21}\}$$

$$C) \{-4 - \sqrt{21}, -4 + \sqrt{21}\}$$

$$D) \{4 + \sqrt{21}\}$$

$$17) x^2 - 8x - 3 = 0 \quad 17) \underline{\hspace{2cm}}$$

$$A) \{4 - \sqrt{3}, 4 + \sqrt{3}\}$$

$$B) \{4 - \sqrt{19}, 4 + \sqrt{19}\}$$

$$C) \{-4 - \sqrt{19}, -4 + \sqrt{19}\}$$

$$D) \{8 - \sqrt{67}, 8 + \sqrt{67}\}$$

Find the real solutions, if any, of the equation. Use the quadratic formula.

18) $3x^2 + x - 1 = 0$

A) $\left\{\frac{-1 - \sqrt{13}}{2}, \frac{-1 + \sqrt{13}}{2}\right\}$

C) $\left\{\frac{1 - \sqrt{13}}{6}, \frac{1 + \sqrt{13}}{6}\right\}$

B) $\left\{\frac{-1 - \sqrt{13}}{6}, \frac{-1 + \sqrt{13}}{6}\right\}$

D) no real solution

18) _____

19) $2x^2 + 10x + 7 = 0$

A) $\left\{\frac{-10 - \sqrt{11}}{2}, \frac{-10 + \sqrt{11}}{2}\right\}$

C) $\left\{\frac{-5 - \sqrt{39}}{2}, \frac{-5 + \sqrt{39}}{2}\right\}$

B) $\left\{\frac{-5 - \sqrt{11}}{2}, \frac{-5 + \sqrt{11}}{2}\right\}$

D) $\left\{\frac{-5 - \sqrt{11}}{4}, \frac{-5 + \sqrt{11}}{4}\right\}$

19) _____

20) $25x^2 - 70x + 49 = 0$

A) $\left\{\frac{7}{5}\right\}$

B) $\left\{\frac{7}{5}, -35\right\}$

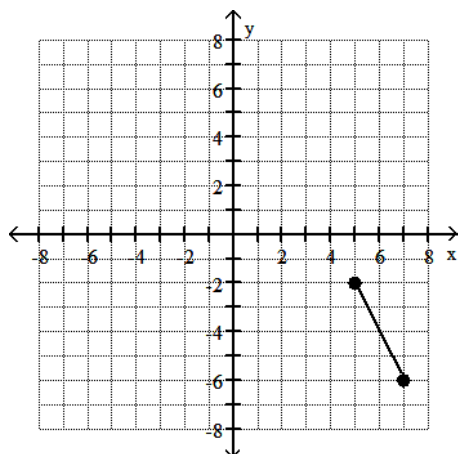
C) $\left\{-\frac{7}{5}\right\}$

D) no real solution

20) _____

Find the distance $d(P_1, P_2)$ between the points P_1 and P_2 .

21)



A) 6

B) $2\sqrt{5}$

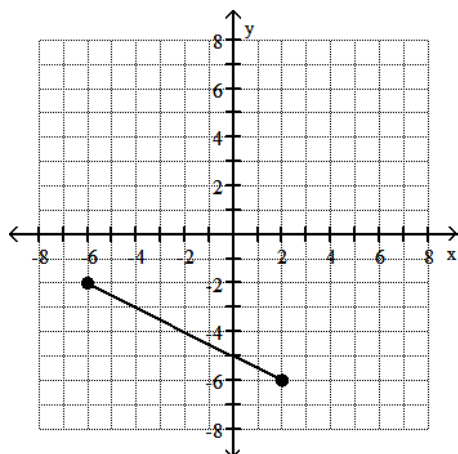
C) $12\sqrt{3}$

D) 12

21) _____

22)

22) _____



A) $48\sqrt{3}$

B) 48

C) 12

D) $4\sqrt{5}$

Find the midpoint of the line segment joining the points P_1 and P_2 .

23) $P_1 = (b, 9)$; $P_2 = (0, 3)$

23) _____

A) $(b, 6)$

B) $\left(\frac{b}{2}, 6\right)$

C) $\left(-\frac{b}{2}, 6\right)$

D) $(b, 12)$

24) $P_1 = (3a, 5)$; $P_2 = (4a, 6)$

24) _____

A) $(7a, 11)$

B) $\left(\frac{11a}{2}, \frac{7}{2}\right)$

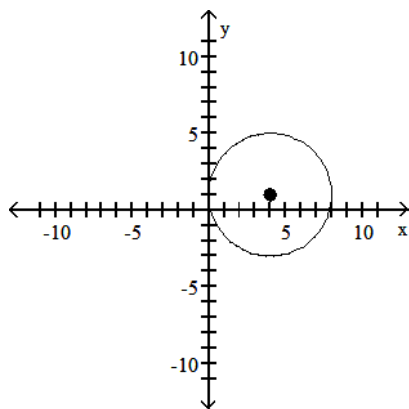
C) $\left(\frac{7a}{2}, \frac{11}{2}\right)$

D) $(a, 1)$

Write the standard form of the equation of the circle.

25)

25) _____



A) $(x - 1)^2 + (y - 4)^2 = 16$

B) $(x - 4)^2 + (y - 1)^2 = 16$

C) $(x + 4)^2 + (y + 1)^2 = 16$

D) $(x + 1)^2 + (y + 4)^2 = 16$

Write the standard form of the equation of the circle with radius r and center (h, k) .

26) $r = 6$; $(h, k) = (0, 10)$

26) _____

A) $x^2 + (y - 10)^2 = 36$

B) $x^2 + (y + 10)^2 = 6$

C) $(x + 10)^2 + y^2 = 36$

D) $(x - 10)^2 + y^2 = 36$

27) $r = \sqrt{19}$; $(h, k) = (8, -8)$

A) $(x + 8)^2 + (y - 8)^2 = 19$

C) $(x + 8)^2 + (y - 8)^2 = 361$

B) $(x - 8)^2 + (y + 8)^2 = 361$

D) $(x - 8)^2 + (y + 8)^2 = 19$

27) _____

Simplify the expression. Assume that all variables are positive when they appear.

28) $\sqrt[3]{1000x^4y^5}$

A) $3xy\sqrt[3]{xy^2}$

B) $10xy\sqrt{xy^2}$

C) $10xy\sqrt[3]{xy^2}$

D) $10xy\sqrt[3]{xy}$

28) _____

29) $\sqrt{\frac{20x^2y}{49}}$

A) $\frac{2\sqrt{5x^2y}}{7}$

B) $\frac{2x\sqrt{5y}}{7}$

C) $4x\sqrt{5y}$

D) $x\sqrt{\frac{20y}{7}}$

29) _____

30) $\sqrt{y^{13}}$

A) $y^6\sqrt{y}$

B) $y\sqrt{y^{11}}$

C) $y^{12}\sqrt{y}$

D) $\sqrt{y^{13}}$

30) _____

31) $\frac{-7}{\sqrt{12}}$

A) $-\frac{7\sqrt{3}}{6}$

B) $-\frac{7\sqrt{3}}{3}$

C) -12

D) $-7\sqrt{3}$

31) _____

32) $\frac{5}{9 - \sqrt{10}}$

A) $\frac{45 + 5\sqrt{10}}{1}$

B) $\frac{45 + 5\sqrt{10}}{71}$

C) $\frac{5}{9} - \frac{5}{\sqrt{10}}$

D) $\frac{45 - 5\sqrt{10}}{71}$

32) _____

33) $\frac{1 - \sqrt{6}}{1 + \sqrt{6}}$

A) $\frac{7 - 2\sqrt{6}}{-5}$

B) $\frac{-5 - 2\sqrt{6}}{7}$

C) $\frac{7 + 2\sqrt{6}}{-5}$

D) 1

33) _____