

READY, SET, GO!

Name \_\_\_\_\_

Period \_\_\_\_\_

Date \_\_\_\_\_

READY

Topic: Making perfect square trinomials

Fill in the number that completes the square. Then write the trinomial in factored form.

1.  $x^2 + 6x + \frac{9}{4} = (x + \frac{3}{2})^2$        $(\frac{3}{2})^2$
2.  $x^2 - 14x + 49 = (x - 7)^2$        $(-7)^2$
3.  $x^2 - 50x + 625 = (x - 25)^2$        $(-25)^2$
4.  $x^2 - 28x + 196 = (x - 14)^2$        $(-14)^2$

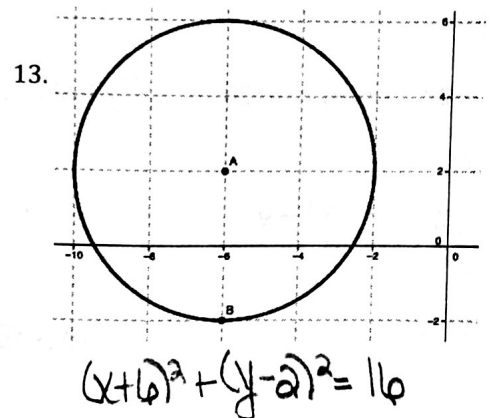
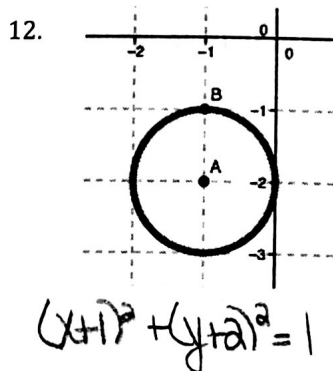
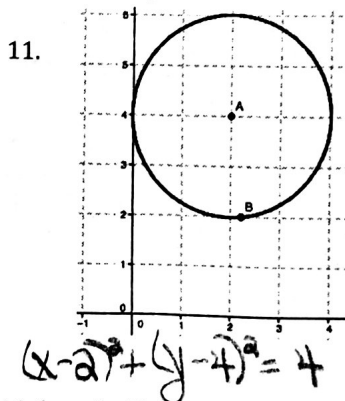
On the next set, leave the number that completes the square as a fraction. Then write the trinomial in factored form.

5.  $x^2 - 11x + \frac{121}{4} = (x - \frac{11}{2})^2$        $(-\frac{11}{2})^2$
6.  $x^2 + 7x + \frac{49}{4} = (x + \frac{7}{2})^2$        $(\frac{7}{2})^2$
7.  $x^2 + 15x + \frac{225}{4} = (x + \frac{15}{2})^2$        $(\frac{15}{2})^2$
8.  $x^2 + \frac{2}{3}x + \frac{1}{9} = (x + \frac{1}{3})^2$        $(\frac{1}{3})^2$
9.  $x^2 - \frac{1}{5}x + \frac{1}{100} = (x - \frac{1}{10})^2$        $(-\frac{1}{10})^2$
10.  $x^2 - \frac{3}{4}x + \frac{9}{64} = (x - \frac{3}{8})^2$        $(-\frac{3}{8})^2$

SET

Topic: Writing equations of circles with center (h, k) and radius r.  $(x-h)^2 + (y-k)^2 = r^2$

Write the equation of each circle.



Write the equation of the circle with the given center and radius. Then write it in expanded form.

14. Center: (5, 2) Radius: 13

$$(x-5)^2 + (y-2)^2 = 169$$

$$x^2 - 10x + 25 + y^2 - 4y + 4 = 169$$

$$x^2 + y^2 - 10x - 4y - 140 = 0$$

16. Center: (0, 8) Radius: 15

$$x^2 + (y-8)^2 = 225$$

$$x^2 + y^2 - 16y + 64 = 225$$

$$x^2 + y^2 - 16y - 161 = 0$$

18. Center: (-1, 2) Radius: 10

$$(x+1)^2 + (y-2)^2 = 100$$

$$x^2 + 2x + 1 + y^2 - 4y + 4 = 100$$

$$x^2 + y^2 + 2x - 4y - 95 = 0$$

Topic: Verifying if a point is a solution

15. Center: (-6, -10) Radius: 9

$$(x+6)^2 + (y+10)^2 = 81$$

$$x^2 + 12x + 36 + y^2 + 20y + 100 = 81$$

$$x^2 + y^2 + 12x + 20y + 55 = 0$$

17. Center: (19, -13) Radius: 1

$$(x-19)^2 + (y+13)^2 = 1$$

$$x^2 - 38x + 361 + y^2 + 26y + 169 = 1$$

$$x^2 + y^2 - 38x + 26y + 529 = 0$$

19. Center: (-3, -4) Radius: 8

$$(x+3)^2 + (y+4)^2 = 64$$

$$x^2 + 6x + 9 + y^2 + 8y + 16 = 64$$

$$x^2 + y^2 + 6x + 8y - 39 = 0$$

Identify which point is a solution to the given equation. Show your work.

20.  $y = \frac{4}{5}x - 2$

a. (-15, -14)

b. (10, 10)

$$-14 = \frac{4}{5}(-15) - 2$$

$$-14 = -12 - 2$$

$$10 = \frac{4}{5}(10) - 2$$

$$10 = 8 - 2$$

21.  $y = 3|x|$

a. (-4, -12)

b.  $(-\sqrt{5}, 3\sqrt{5})$

$$-12 = 3|-4|$$

$$-12 = 3 \cdot 4$$

$$3\sqrt{5} = 3|-\sqrt{5}|$$

$$3\sqrt{5} = 3 \cdot \sqrt{5}$$

22.  $y = x^2 + 8$

a.  $(\sqrt{7}, 15)$

b.  $(\sqrt{7}, -1)$

$$15 = (\sqrt{7})^2 + 8$$

$$15 = 7 + 8$$

$$-1 = (\sqrt{7})^2 + 8$$

$$-1 = 7 + 8$$

23.  $y = -4x^2 + 120$

a.  $(5\sqrt{3}, -180)$

b.  $(5\sqrt{3}, 40)$

$$-180 = -4(5\sqrt{3})^2 + 120$$

$$-180 = -300 + 120$$

$$40 = -4(5\sqrt{3})^2 + 120$$

$$40 = -300 + 120$$

24.  $x^2 + y^2 = 9$

a. (8, -1)

b.  $(-2, \sqrt{5})$

$$8^2 + (-1)^2 = 9$$

$$64 + 1 = 9$$

$$(-2)^2 + (\sqrt{5})^2 = 9$$

$$4 + 5 = 9$$

25.  $4x^2 - y^2 = 16$

a.  $(-3, \sqrt{10})$

b.  $(-2\sqrt{2}, 4)$

$$4(-3)^2 - (\sqrt{10})^2 = 16$$

$$36 - 10 = 16$$

$$4(-2\sqrt{2})^2 - 4^2 = 16$$

$$32 - 16 = 16$$