Station 1

I can use the zero-product property (7.4)

1) $-3y(y-4)=0$

$y=0,4$

2) $(d-6)(d+1)=0$

$d=6,-1$

3) $9h(h-4)(3h+2)=0$

$h=0,4,-\frac{2}{3}$

4) $k(k+2)^2=0$

$k=0,-2$

I can factor polynomials using the GCF (7.4)

5) $36v^2+24v$

$12v(3v+2)$

6) $-32n=8n^2$

$8n(n+4)=0$

7) $4w^2=12w$

$4w(w-3)=0$

8) $10k^3-15k^2$

$5k^2(2k-3)$

Station 2

I can use the zero-product property to solve real-life problems. (7.4)

9) The height y of a jumping frog can be modeled by $y = -16x^2 + 4x$, where x is the time (in seconds) since the frog jumped from the ground. Find the roots of the equation when $y = 0$. Explain what the roots mean in this situation.

$x = 0, \frac{1}{4}$ the times the frog is on the ground (start and finish of jump)

10) The archway to the entrance of an art gallery can be modeled by $y = -\frac{1}{3}(x - 5)(x + 5)$, where x and y are measured in feet. The x-axis represents the floor. Find the width of the arch at floor level.

$10\ feet$

Station 3

I factor $ax^2 + bx + c$. (7.5/7.6)

11) $x^2 + 5x + 6$

$(x + 3)(x + 2)$

12) $y^2 - 14y + 24$

$(y - 12)(y - 2)$

13) $n^2 - 3n - 40$

$(n - 8)(n + 5)$

14) $z^2 + 3z - 28$

$(z + 7)(z - 4)$

15) $6x^2 - 12x - 18$

$6(x - 3)(x + 1)$

16) $2x^2 - 13x - 45$

$(2x + 5)(x - 9)$

17) $-2p^2 + 7p - 6$

$-(2p - 3)(p - 2)$

18) $-6v^2 - 11v - 4$

$-(2v + 1)(3v + 4)$

Station 4

I can use factoring to solve real-life problems. (7.5/7.6 and 7.7 and 7.8)

19) The height h (in feet) above the water of a cliff diver is modeled by $h = -16t^2 + 10t + 26$, where t is the time (in seconds). How long is the diver in the air?

$$t = \frac{13}{8}\ seconds$$

20) A projector displays a rectangular image on a wall. The height of the wall is x feet. The area (in square feet) of the projection is represented by $x^2 - 12x + 32$. The width of the projection is $(x - 4)$ feet.

a. Write a binomial that represents the height of the projection.

b. Find the perimeter of the projection when the height of the wall is 10 feet.

a) $(x - 8)$ b) $16\ feet$

Station 5

I can factor the difference of two squares. (7.7)

21) $x^2 - 36$

$(x + 6)(x - 6)$

22) $1 - 25y^2$

$(1 + 5y)(1 - 5y)$

23) $49 - 4t^2$

$(7 - 2t)(7 + 2t)$

24) $121s^2 - 25t^2$

$(11s - 5t)(11s + 5t)$

I can factor perfect square trinomials. (7.7)

25) $z^2 + 26z + 169$

$(z + 13)^2$

26) $16x^2 - 40x + 25$

$(4z - 5)^2$

27) $k^2 + 14k + 49$

$(k + 7)^2$

28) $m^2 - 18m + 81$

$(m - 9)^2$

Station 6

I can factor polynomials by grouping (7.8)

29) $3p^3 + 5p^2 - 12p - 20$

$(p + 2)(p - 2)(3p + 5)$

30) $2y^3 - 2y^2 + 3y - 3$

$(y - 1)(2y^2 + 3)$

I can factor polynomials completely (7.7)

31) $3t^3 + 12t^2 + 12t$

$3t(t + 2)^2$

32) $-6q^3 + 28q^2 + 10q$

$-2q(q - 5)(3q + 1)$

33) $-21h^4 + 77h^3 + 28h^2$

$-7h^2(h - 4)(3h + 1)$

34) $36t - 4t^3$

$4t(3 - t)(3 + t)$